Site Inspection Report

Shotgun Range Site Former Laredo Air Force Base Laredo, Texas

Prepared for

U.S. Army Corps of Engineers, Tulsa District

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CH2MHILL

Executive Summary

This Site Inspection (SI) Report has been prepared for the United States Army Corps of Engineers (USACE), Tulsa District, by CH2M HILL. This report describes the investigation activities and presents the results and conclusions from the Site Inspection of the Shotgun Range (SGR) site at the former Laredo Air Force Base (LAFB), Laredo, Texas.

The former LAFB was used as a military base from 1942 to 1974. In 1974, the former base lands were either deeded or sold to other federal, state, and county agencies, private firms, and the City of Laredo. The former LAFB airfield is now operated as the Laredo International Airport (LIA).

The SGR site is located in an area northwest of the LIA, north of Hillside Road. The SGR area operated as a gunnery training area. The area was developed as a golf course during the 1960s, then as a residential area during the 1980s. No previous investigations related to potential environmental impacts due to DoD operations of the SGR site have been performed.

At the SGR site, 33 soil samples were analyzed for total lead and eight soil samples were analyzed for lead by the synthetic precipitation leachate procedure (SPLP). The analytical results were then compared to the Texas Natural Resource Conservation Commission (TNRCC) Risk Reduction Standard No. 2 (RRS2) GWP-Res, SAI-Res, and GW-Res Media-Specific Concentrations for lead in soils and groundwater. The results of the investigation indicate that:

Lead is present in the SGR site soils at concentrations exceeding the TNRCC RRS2
GWP-Res standard (1.5 mg/kg). However, there is no site-specific background
concentration for lead. The detected lead concentrations are generally low, with only
nine of the soil samples (and one QC sample) containing over 20 mg/kg of total lead.
Only one of the soil samples, SGRBHSO013000N1, exceeds the TNRCC RRS2 SAI-Res
standard of 500 mg/kg.

- The high concentration exhibited by sample SGRBHSO013000N1 (36,200 mg/kg) appears to be an outlier caused by the inclusion of a piece of lead shot or fragment of bullet within the aliquot of soil analyzed by the laboratory. Therefore, the analytical result may not represent the actual lead content of the soil. The deeper sample collected from the same boring contained only an estimated 8.8 mg/kg of total lead. The three confirmation samples collected at the same property contained lead at 265 mg/kg or less.
- The soil samples exhibiting the highest concentrations of total lead were collected from the vicinity of the original firing line north of present day Hillside Road. Further, the detected lead concentrations for samples collected from a depth of 2.0 feet are lower than the concentrations reported for the samples collected from 0-0.5 feet depth in the same borings. Only borings SGRSB012 and SGRSB015 are exceptions, with the lead concentration for the deeper sample only slightly greater than for the shallower sample.
- The detected lead concentrations in the SPLP extracts for five of the eight samples (excluding the QC duplicate) analyzed for lead by SPLP were found to exceed the TNRCC RRS2 GW-Res standard of 0.015 mg/L (all SPLP samples were shallow samples). However, since the total lead concentrations are lower for the deeper soil samples than for the shallow soil samples, and the three samples for which the SPLP extract did not exceed the GW-Res standard had total lead concentrations greater than the highest total lead concentration for the deeper soil samples, it appears that significant leaching of the lead into the subsurface is not taking place.
- The potential for the lead detected in site soils to migrate into groundwater is limited by a number of factors: the clay content of the soil, the presence of carbonates (caliche) in the soil, the alkaline pH of the soil, and the limited rainfall in the Laredo area. Leaching of the lead into groundwater is therefore not likely.
- The most likely route of contaminant migration and exposure appears to be through direct contact (dermal contact and inhalation/ingestion) with site soils. As stated above, only one soil sample, an apparent outlier, was reported to contain lead at a concentration exceeding the SAI-Res standard.

 Erosion of site soils by wind and surface water has resulted in many homeowners at the SGR site purchasing topsoil to fill in low areas and to replace eroded soil. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

Based upon the above conclusions, CH2M HILL recommends that no further investigation of the SGR site is necessary.

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Acronyms

above mean sea level amsl

Air Force Base **AFB**

ARAR Applicable or Relevant and Appropriate Requirement

Above Ground Storage Tank **AST**

below ground surface bgs

Comprehensive Environmental Response, Compensation, and Liability Act CERCLA

Code of Federal Regulations **CFR** Constituent of Potential Concern COPC

DERP Defense Environmental Restoration Program

Department of Defense DoD DRO Diesel Range Organics Data Quality Objective DOO

EPA Environmental Protection Agency

FUDS Formerly Used Defense Site

Fire Training Area FTA

Gasoline Range Organics **GRO**

GW-Res TNRCC risk reduction standards for contaminants in groundwater at

residential sites

TNRCC risk reduction standards for contaminants in soils at residential sites, **GWP-Res**

protective of groundwater

IDW Investigation Derived Waste **Industrial Waste Treatment Plant IWTP**

LAFB Laredo Air Force Base

Laredo International Airport LIA Maximum Contaminant Level **MCL** milligrams per kilogram mg/kg

milligrams per liter mg/L

MSC Media Specific Concentration Polychlorinated Biphenyl PCB Photoionization Detector PID

PPE Personal Protective Equipment

parts per million ppm

PRP Potentially Responsible Party

PVC Polyvinyl Chloride Quality Assurance OA Quality Control OC

Resource Conservation and Recovery Act of 1976 **RCRA**

Risk Reduction Standard **RRS**

SAI-Res TNRCC risk reduction standards for contaminants in soils at residential sites,

protective of soil/air ingestion

Superfund Amendments and Reauthorization Act **SARA**

Shotgun Range **SGR**

04931

SI Site Inspection

SPLP Synthetic Precipitation Leachate Procedure

SU standard units

SVOC Semivolatile Organic Compound TAC Texas Administrative Code

TDS Total Dissolved Solids

TNRCC Texas Natural Resource Conservation Commission

TPH Total Petroleum Hydrocarbons
USACE U.S. Army Corps of Engineers
USCS Unified Soil Classification System

USGS U.S. Geological Survey VOC volatile organic compound

Section 1 Introduction

1. Introduction

This Site Inspection (SI) Report presents the findings of field activities associated with a SI of the Shotgun Range (SGR) site at the former Laredo Air Force Base (LAFB). The purpose of the SI was to assess the presence or absence of impacted soils at the site due to activities conducted during the time that the Department of Defense (DoD) controlled LAFB, and to recommend further actions (if any) for the site. The field activities were performed during May and June 1999, and included drilling several soil borings and the collection and analysis of soil samples. The investigation was conducted by CH2M HILL, under contract to the US Army Corps of Engineers (USACE).

Section 2 Site Background

2. Site Background

2.1 Site Location and Description

The site being investigated is located in Laredo, Texas, along the Texas/Mexico border and approximately 150 miles south-southwest of the City of San Antonio. The SGR is located approximately 1/2-mile west of the northern end of the Laredo International Airport (Figure 2-1).

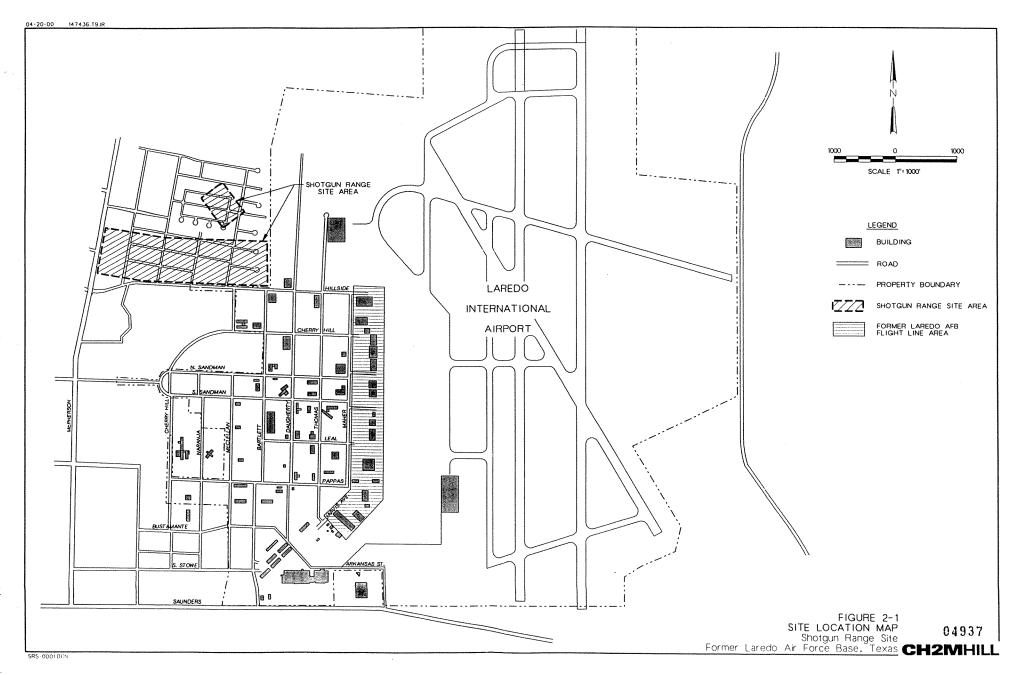
The SGR site consists of two areas. The larger, main portion of the SGR area is bordered on the south by present-day Hillside Road, on the west by present-day McPherson Road, on the east by mostly vacant city-owned property, and on the north approximately by present-day Hibiscus Lane. The smaller portion of the SGR area is a rectangular area centered just west of the present day intersection of Hemlock Drive and Poinsetta Drive (Figure 2-2).

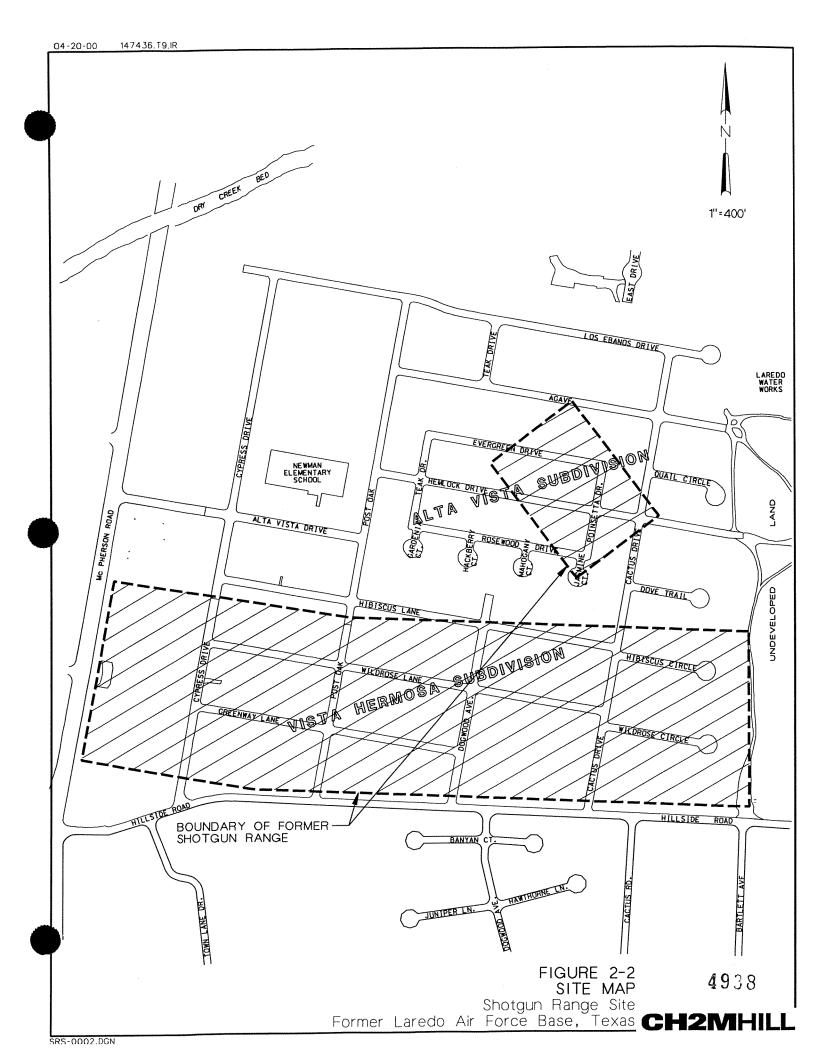
The SGR area is generally flat, with a gentle west-northwestward slope. An intermittent stream/drainage ditch is located approximately 1/4-mile north of the SGR site. No other creeks, ponds, or drainage features are present. The area is currently developed for residential use (the Vista Hermosa and Alta Vista subdivisions). Construction is primarily single-family dwellings, although some condominiums and a church are present along Hillside Road. Commercial properties are located along McPherson Road, on the western side of the site.

2.2 Site History

2.2.1 LAFB

On May 7, 1942, the U.S. Government acquired 2,085 acres for the construction of Laredo Army Air Corps Base (now known as former Laredo Air Force Base). The Government constructed runways and numerous facilities from 1942 to 1974. The Base was initially deactivated in June of 1947; however, it was reactivated during the Korean conflict. The former Base was then finally deactivated in March of 1974. Approximately 309 acres were either deeded or sold to other federal, state and county agencies, or private firms. The





remainder of the Base was deeded to the City of Laredo. The City of Laredo operates the former LAFB airfield as the LIA.

2.2.2 SGR Site

The SGR was part of the original base construction and was operated as a gunnery training area. At the SGR, crews were trained in the use of the types of machine guns and turrets utilized on military aircraft, as well as small arms. Based upon historical aerial photography, the original firing line was located along present-day Hillside Road, with the weapons fired northward (Figure 2-3). The firing line extended from present-day McPherson Road on the west to north of present-day Bartlett Avenue, on the east.

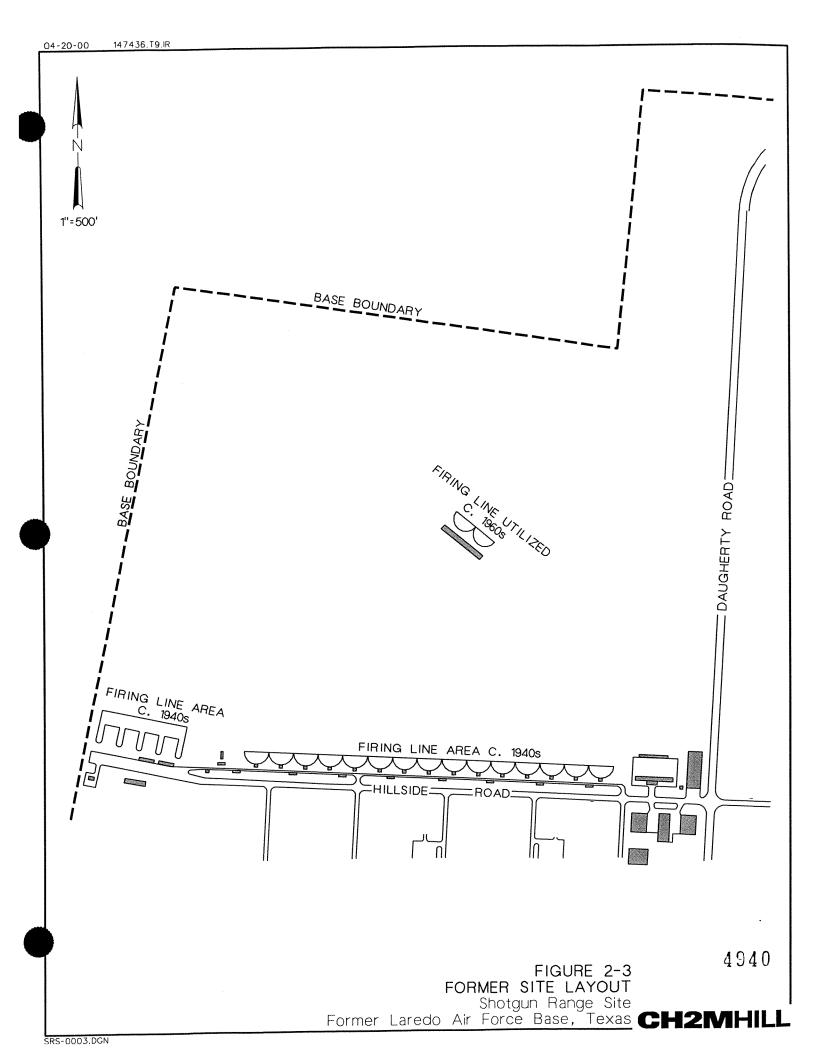
The use of the SGR during the period of 1947 through 1952, while the base was operated as Laredo's municipal airport, is unknown. However, based upon historical aerial photography from 1952 (USDA, 1952), it appears that the SGR was either unused during that time period or possibly used as a public firing range, as no obvious changes in land use are visible between the 1952 and earlier photographs.

During the 1960s, much of the SGR area was developed as a golf course. A 1973 aerial photograph indicates that the original firing line area had been incorporated into the golf course and another smaller firing line had been constructed further north, approximately in the present-day location of the intersection between Poinsetta Drive and Hemlock Drive. The direction of fire for the new firing line was apparently toward the north-northeast.

Based upon historical aerial photography, the residential development of the southern portion of the SGR began in approximately 1980, with the construction of the Vista Hermosa subdivision. Development of the Alta Vista subdivision apparently began approximately in the mid-1980s.

2.3 Summary of Previous Investigations

No previous investigations related to potential environmental impacts due to DoD operations of the SGR have been performed.



2.4 Site Characteristics

2.4.1 Physiography

The area of investigation is located within Webb County, Texas. Webb County is situated within the Arid Plains physiographic province. The countryside around Laredo is characterized by small hills, covered with low-growing brushy vegetation and numerous arroyos and dry creek beds gently sloping toward the Rio Grande River, which lies approximately 2.5 miles west of the former LAFB (Parker, 1996; Raba-Kistner, 1996). The surface elevation of Webb County ranges from 372 feet above mean seal level (amsl) at the Rio Grande River up to 945 feet amsl. The elevation in the vicinity of the former LAFB is approximately 460 to 490 feet amsl.

2.4.2 Soils

The soils within the vicinity of the former LAFB are characterized by the US Department of Agriculture Natural Resource Conservation Service as belonging to the Catarina-Montell-Jimenez soil association, which are typically cracking, crumbly clay soils overlying stiff caliche. The soils at the SGR site have been further classified as Copita fine sandy loam, 0-3 percent slopes (USDA).

The Copita fine sandy loam is a moderately deep, nearly level to gently sloping soil, found on summits and side slopes of low hills and on broad, convex plains. The soil typically consists of a surface layer of brown fine sandy loam about 9-inches thick, below which is a subsoil of yellowish brown sandy clay loam and light yellowish brown sandy clay loam that extends to a depth of about 37 inches. Underlying the soil is weakly to strongly cemented, pale yellow sandstone. The soil is calcareous and moderately alkaline throughout. The soil is well drained, with a medium surface runoff. Permeability of the Copita series fine sandy loam is considered moderate with a range of 0.6 inches per hour (in./hr) to 2.0 in./hr (USDA).

2.4.3 Geology

The surface geology of Webb County is mostly Tertiary in age, with a narrow band of Quaternary-age alluvium along the Rio Grande flood plain. Webb County falls within the Rio Grande Embayment. The sedimentary rocks throughout Laredo are part of the Tertiary

(Eocene)-age Claiborne formation, which is composed of sandstone, sand mudstone, and shale.

2.4.4 Meteorology

Webb County receives a limited amount of rainfall per year, with an average annual precipitation of 20 to 22 inches (USACE, 1998). The average minimum temperature in January is 47°F, and the average maximum temperature in July is 99°F.

2.4.5 Surface Water

In the Laredo area, surface water runoff is directed toward the Rio Grande River, which lies approximately 2.5 miles west of the former LAFB area. The Rio Grande River is impounded in the International Amistad Reservoir (approximately 160 miles upstream of Laredo), and its flow is controlled by dam releases. The majority of the region's drinking water and irrigation water is obtained from the river.

An unnamed intermittent stream lies north of the SGR area. The only other major surface water resource in the area is Casa Blanca Lake located approximately one mile east of the LIA. Casa Blanca Lake was created by the impoundment of San Ygnacio Creek. Other creeks in the region are intermittent, draining into the Rio Grande.

2.4.6 Groundwater Hydrogeology

Regional Hydrogeology

Webb County lies atop the Eocene outcrop/downdip Carrizo-Wilcox aquifer. The regional groundwater flow direction is toward the southwest and west at an estimated velocity of 5 feet per day. Potable water for the area is obtained through the City of Laredo public water supply system and is collected entirely from the Rio Grande River (USACE, 1998).

Local Hydrogeology

No shallow groundwater was encountered during the present investigation at the SGR site. However, shallow groundwater was encountered during a previous investigation at another site located less than 1/2-mile east of the SGR site. At the other site, groundwater was encountered at a depth of approximately 8 to 10 feet bgs, with a flow gradient toward the north, generally reflecting surface topography in that area (CH2M HILL, 1999). It is likely

that shallow groundwater at the SGR site is present at about the same depths and with the flow gradient similarly reflecting surface topography, sloping toward the west-northwest.

Section 3
Field Investigation Activities

3. Field Investigation Activities

The field investigation activities for the SI at the SGR site were performed on May 21 through May 24, 1999, with confirmation sampling activities performed on June 24, 1999. The confirmation sampling was performed in order to collect additional samples from one of the first-round soil sampling locations. The activities consisted primarily of drilling the shallow soil borings and collecting and analyzing the subsurface soil samples. The procedures utilized for the performance of these activities are discussed below.

3.1 Soil Boring Drilling and Sampling

A total of 18 soil borings (soil borings SGRSB001 through SGRSB018) were drilled at the SGR site. The boring locations were chosen to assess the presence of soil contamination in areas most likely to be impacted due to past site activities (areas just beyond the firing lines of the former SGR). Soil samples were collected from borings SGRSB001 through SGRSB015 during the initial investigation in May 1999. Confirmation samples were collected from borings SGRSB016 through SGRSB018 in June 1999. The confirmation sampling event was performed to collect additional samples to further assess one of the initial sampling locations. The soil boring locations are presented on Figure 3-1.

Prior to mobilization to the field, Right-of-Entry agreements were obtained from 19 property owners in the area formerly occupied by the SGR facility. Fifteen of the properties were chosen for sampling, based upon each property's proximity to the SGR firing line and to each other. The property owners were notified of the upcoming sampling activities approximately 48 hours prior to the initiation of the activities. The properties that were sampled are listed in Table 3-1.

Generally, one soil boring was advanced at each property. Only one property, USACE Investigation ID No. 109, was the location of multiple borings: the initial sampling location (SGRSB013) and the three confirmatory sampling locations (SGRSB016 through SGRSB018). The soil boring location(s) at each property were chosen in order to minimize impact to the landscaping at the property. If a small area of bare soil was present (and not apparently

		1	r	
BORING ID NO.	USACE INVESTIGATION ID NO.	LOT NO.	BLOCK NO.	SUBDIVISION
SGRBH001	73	9	5	Vista Hermosa
SGRBH002	78	14	5	Vista Hermosa
SGRBH003	30	2	2	Vista Hermosa
SGRBH004	87	14	7	Vista Hermosa
SGRBH005	90	11	7	Vista Hermosa
SGRBH006	99	9	8	Vista Hermosa
SGRBH007	82	4	6	Vista Hermosa
SGRBH008	107	8	9	Vista Hermosa
SGRBH009	85	7	6	Vista Hermosa
SGRBH010	18	7	2	Alta Vista
SGRBH011	20	9	2	Alta Vista
SGRBH012	16	17, 18	1 1	Alta Vista
SGRBH013	109	17	23	Vista Hermosa
SGRBH016		-		AMAN.
SGRBH017		-	-	
SGRBH018		-		_
SGRBH014	114	22	23	Vista Hermosa
SGRBH015	8	14	3	Alta Vista

LEGEND

USACE INVESTIGATION 53 I.D. NUMBER

BOUNDARY OF FORMER SHOTGUN RANGE

> FIGURE 3-1 SOIL BORING LOCATIONS

Shotgun Range Site
Former Laredo Air Force Base, Texas CH2MH

4946

HILLSIDE ROAD

BORING LOCATION

TABLE 3-1
Properties Sampled During SGR Investigation
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Boring ID No.	USACE Investigation ID No.	Lot No.	Block No.	Subdivision
SGRBH001	73	9	5	Vista Hermosa
SGRBH002	78	14	5	Vista Hermosa
SGRBH003	30	2	2	Vista Hermosa
SGRBH004	87	14	7	Vista Hermosa
SGRBH005	90	11	7	Vista Hermosa
SGRBH006	99	9	8	Vista Hermosa
SGRBH007	82	4	6	Vista Hermosa
SGRBH008	107	8	9	Vista Hermosa
SGRBH009	85	7	6	Vista Hermosa
SGRBH010	18	7	2	Alta Vista
SGRBH011	20	9	2	Alta Vista
SGRBH012	16	17, 18	1	Alta Vista
SGRBH013 SGRBH016 SGRBH017 SGRBH018	109	17	23	Vista Hermosa
SGRBH014	114	22	23	Vista Hermosa
SGRBH015	8	14	3	Alta Vista

caused by the presence of contamination), that area was chosen for the boring location. If no areas of bare soil were present, then a location that would not be readily visible from the street (such as behind a bush or brick wall) was chosen. A small area of turf would be cut and removed prior to drilling the boring, then replaced after the boring and sampling activities were complete. The presence of underground sprinkler systems and utility lines were also considered when choosing a boring location at a particular property. Texas One Call and the City of Laredo were contacted for identification of utilities prior to the field sampling effort.

The soil borings were drilled by CH2M HILL personnel, using a 4-inch diameter, stainless-steel hand auger. For borings SGRSB001 through SGRSB015, each of the soil borings was

advanced to a total depth of approximately 2 feet bgs. Borings SBRSB016 through SGRSB018, advanced during the confirmation sampling, were advanced to a depth of only about 0.5 feet.

During advancement of the soil borings, the recovered soils were logged according to the Unified Soil Classification System (USCS). The soil type, color, moisture content, staining (if any), odors (if any) and other factors were described. Copies of the soil boring logs are presented in Appendix A. Because of the minimal depth of borings SGRSB016 through SGRSB018, soil boring logs were not recorded for those borings. However, the soil descriptions were recorded in the field notebook. The soils encountered in all three confirmation sample borings consisted of moist, dark yellowish-brown (10YR 4/4), sandy silt (ML-SM), with some small gravel. This is similar to the soils encountered in the other SGR site borings. The soil cuttings were placed on plastic sheeting during advancement of the borings.

For borings SGRSB001 through SGRSB015, soil samples were collected at depths of approximately 0-0.5 feet and 2.0 feet, bgs. Soil samples from borings SGRSB016 through SGRSB018 were collected from a depth of approximately 0-0.5 feet bgs. Upon the recovery of soil cuttings from the desired sample interval, the cuttings were placed into a stainless-steel bowl, then mixed by hand. The soil sample was then placed into an appropriate laboratory-supplied container, properly labeled, and placed into an ice-cooled chest, pending shipment to the analytical laboratory.

Each soil boring was backfilled utilizing commercially available topsoil, purchased at a local discount department store. The topsoil backfill material was compacted during placement in order to prevent the later development of a depression at the boring location when the lawn was watered. After each boring was backfilled, the removed portion of turf (if any) was replaced and a marker flag was placed at the boring location to facilitate later surveying of the location. Because borings SGRSB016 through SGRSB018 were drilled during the confirmation sampling, their locations were not surveyed. However, their locations were measured in the field relative to boring SGRSB013, which had been surveyed.

The soil cuttings generated during the drilling and sampling activities were temporarily placed into a 5-gallon bucket then later transferred into a DOT-approved, steel 55-gallon drum. The drum of soil cuttings was placed on LIA property for storage, pending disposal.

During the confirmation sampling, the homeowners at USACE Investigation ID No. 109 (the property where borings IWTPSB013 and IWTPSB016 through IWTPSB018 were drilled) spoke with the CH2M HILL field personnel regarding the soil at their property. The homeowners mentioned that over the years, several truck-loads of soil had been brought in and placed around the property to build up areas and replace eroded soil. They said that most of their property at one time or another probably had received fill soil. They further stated that it was common for other homeowners in the neighborhood to use fill soil to replace eroded soil. The homeowners had no knowledge of where the fill soils that had been placed on their property may have originated. They also could not be sure whether or not the sampling locations at their property were definitely within filled areas. It is noted, however, that the soils observed during sampling on their property appeared to be similar to the soils observed elsewhere at the SGR site.

3.2 Soil Sample Analysis

Laboratory analysis for the SGR site soil samples was provided by Southwest Laboratories of Oklahoma, in Broken Arrow Oklahoma (Southwest Labs). The soil samples collected during the first round of sampling at the SGR site were submitted for analysis of total lead by EPA Test Method 6010. Due to apparently elevated concentrations of lead for six of the samples (including one of the QC field duplicate samples), five of the six samples exhibiting a total lead concentration exceeding 20 milligrams per kilogram (mg/kg) (SGRBHSO002000N1, SGRBHSO004000N1, SGRBHSO005000N1, SGRBHSO006000FD1, and SGRBHSO009000N1) were resubmitted for analysis of lead by the synthetic precipitation leachate procedure (SPLP). The purpose of the re-analysis was to assess the likelihood for the lead present in the soil to leach into groundwater.

Although sample SGRBHSO013000N1 was reported to contain over 20 mg/kg of total lead, the sample was not analyzed for SPLP lead because the total lead concentration reported for that sample was significantly greater than the concentrations reported for the other samples. Rather, confirmatory soil samples (SGRBHSO016000N1, SGRBHSO017000N1, and

SGRBHSO018000N1) were collected at the property where sample SGRBHSO013000N1 had been collected. The confirmation soil samples were submitted for analysis of total lead and for SPLP lead.

During the re-analysis of the initial SGR soil samples and the analysis of the SGR confirmation soil samples, some laboratory errors occurred:

- The initial sample SGRSBSO009000N1 was not analyzed for SPLP lead as requested.
 Apparently due to a mis-reading of the sample Chain of Custody, sample
 SGRSBSO001000N1 was analyzed instead.
- The five initial samples that were re-submitted for SPLP lead analyses were mistakenly
 re-analyzed for total lead, as well. The results of the total lead re-analysis are included in
 the discussion of the investigation results presented in Section 7 of this report.
- The confirmation sampling program included a sample intended for analysis as a
 MS/MSD sample (sample SGRSBSO018000MS1). The laboratory mistakenly analyzed
 the sample as a regular field sample. Because it was a split sample from
 SGRSBSO018000N1, sample SGRSBSO018000MS1 can be considered as a field QC
 duplicate sample for SGRSBSO018000N1.
- For the three confirmation samples, the laboratory mistakenly re-analyzed the samples
 for total lead. The results of the total lead re-analysis of the confirmation samples are
 included in the discussion of the investigation results presented in Section 7 of this
 report.

None of the laboratory errors appear to have the potential to affect the quality of the analytical data generated from the field effort or to affect the quality of this SI report.

3.3 Field QA/QC Procedures

3.3.1 Collection of Analytical Samples

QA/QC procedures utilized in the collection of the SGR site soil samples included proper decontamination of reusable sampling equipment, the use of disposable sampling

equipment (gloves), and the proper handling of collected samples. Decontamination procedures are discussed in Section 3.3.4.

Disposable equipment was utilized when possible during the investigation in order to reduce the potential for cross contamination of samples. Disposable materials utilized during the investigation included disposable nitrile gloves and plastic sheeting. New disposable gloves were utilized for each soil sample collection. New pieces of plastic sheeting were utilized at each boring to contain the soil cuttings and to protect the ground surface from the cuttings.

Proper sample handling included the use of new laboratory-supplied and laboratory-preserved sample containers, proper labeling of the sample containers, placement of the samples into ice-cooled chests immediately upon sample collection, maintenance of detailed notes regarding sample collection, maintenance of sample chain-of custody documentation, and proper packing of the samples for shipment to avoid breakage and to maintain the temperature of the samples at or below 4°C.

3.3.2 Collection of QA/QC Samples

In order to aid in the validation and assessment of the quality of the data collected during the SI, various QA/QC samples were collected during the field investigation activities. These samples included QA and QC field duplicates and equipment blanks. Table 3-2 presents the relationships between the regular soil samples collected during the investigation and the corresponding QA/QC samples.

TABLE 3-2
QA/QC Sample Correlation
SGR Site, Former Laredo Air Force Base, Laredo, Texas

QA/QC Sample ID	Sample Type	Associated Regular Sample ID
SGRBHSO006000FD1	QC duplicate	SGRBHSO006000N1
SGRBHSO006000FD2	QA duplicate	SGRBHSO006000N1
SGRBHSO006002FD1	QC duplicate	SGRBHSO006002N1
SGRBHSO006002FD2	QA duplicate	SGRBHSO006002N1
SGRBHSO010000FD1	QC duplicate	SGRBHSO010000N1
SGRBHSO010000FD2	QA duplicate	SGRBHSO010000N1

04951

TABLE 3-2
QA/QC Sample Correlation
SGR Site, Former Laredo Air Force Base, Laredo, Texas

QA/QC Sample ID	Sample Type	Associated Regular Sample ID
SGRBHWQ012000EB1	Equipment Blank	SGRBHSO012000N1
SGRBHWQ015000EB1	Equipment Blank	SGRBHSO015000N1
SGRBHSO018000MS1	QC duplicate *	SGRBHSO018000N1

^{*} Sample was intended for matrix/matrix spike analysis but was inadvertently analyzed by the laboratory as a QC field duplicate.

During the second sampling event performed at the SGR site, no QA/QC samples were collected. However, due to a laboratory error, one sample (SGRBHSO018000MS1) that had been intended as additional volume for a laboratory matrix spike analysis was analyzed as another regular field sample. Sample SGRBHSO018000MS1 had been collected as a split from sample SGRBHSO018000N1. Therefore, SGRBHSO018000MS1 can be considered as a QC field duplicate sample for SGRBHSO018000N1.

During the SI field activities, QA and QC field duplicate soil samples were collected at a frequency of one QA and one QC field duplicate for every ten soil samples. These samples were collected by preparing every tenth soil sample in triplicate. One of the triplicate samples was submitted to the contract analytical laboratory (Southwest Labs) for analysis as a regular field sample. The second triplicate sample was submitted to the contract analytical laboratory as a QC field duplicate sample. The third triplicate sample was submitted to a second laboratory (Environmental Testing & Consulting, of Memphis, Tennessee) to be analyzed as a QA field duplicate sample. To collect the QA and QC field duplicate samples, the recovered soil cuttings from the desired interval were composited prior to placement into the sample containers. The QA and QC field duplicate samples were analyzed for the same parameters as the regular field soil samples.

During soil sampling activities, equipment blank samples were prepared at a frequency of one blank per 20 soil samples. Two equipment blanks were prepared for the SGR site. The equipment blanks were prepared by pouring commercially available distilled water over or through the decontaminated hand auger and into the decontaminated stainless steel bowl utilized for compositing the soil samples. The rinseate was then transferred into appropriate

laboratory-supplied sample containers. The equipment blanks were analyzed for the same parameters as the regular field soil samples.

3.3.3 Sample Identification

The soil samples collected during the SGR site SI were each assigned unique sample identification numbers based upon the following scheme:

SGRBHmm###dddqqq

SGR = Shotgun Range site

BH = Bore Hole

mm = type of matrix

SO for soil

WQ for water quality QA/QC samples (equipment blanks)

= sequential number for location

ddd = beginning depth of sampled interval (000 for 0-0.5 feet, 002 for two feet)

qqq = type of sample for QA/QC purposes

N1 for normal samples

EB1 for equipment blank samples

FD1 for QC samples

FD2 for QA samples

MS1 for matrix spike samples

A table cross referencing the field sample ID numbers with the laboratory sample ID numbers is presented as Table 3-3.

TABLE 3-3 Laboratory/Field Sample ID Cross Reference SGR Site, Former Laredo Air Force Base, Laredo, Texas

Lab ID	Sample ID	Lab ID	Sample ID
38707.01	SGRBHSO001000N1	38708.04	SGRBHSO011000N1
38707.02	SGRBHSO001002N1	38708.05	SGRBHS0011002N1
38707.03	SGRBHSO002000N1	38708.06	SGRBHWQ012000EB1
38707.04	SGRBHSO002002N1	38708.07	SGRBHSO012000N1
38707.05	SGRBHSO003000N1	38708.08	SGRBHS0012002N1
38707.06	SGRBHSO003002N1	38708.09	SGRBHSO013000N1
38707.07	SGRBHSO004000N1	38708.10	SGRBHSO013002N1

TABLE 3-3
Laboratory/Field Sample ID Cross Reference
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Lab ID	Sample ID	Lab ID	Sample ID
38707.08	SGRBHSO004002N1	38708.11	SGRBHSO014000N1
38707.09	SGRBHSO005000N1	38708.12	SGRBHSO0140002N
38707.10	SGRBHSO005002N1	38708.13	SGRBHWQ015000EB1
38707.11	SGRBHSO006000N1	38708.14	SGRBHSO015000N1
38707.12	SGRBHSO006000FD1	38708.15	SGRBHSO015002N1
38707.13	SGRBHSO006002N1	39086.01	SGRBHSO002000N1
38707.14	SGRBHSO006002FD1	39086.02	SGRBHSO004000N1
38707.15	SGRBHSO007000N1	39086.03	SGRBHSO005000N1
38707.16	SGRBHSO007002N1	39086.04	SGRBHSO006000FD1
38707.17	SGRBHSO008000N1	39086.05	SGRBHSO009000N1
38707.18	SGRBHSO008002N1	39177.01	SGRBHSO016000N1
38707.19	SGRBHSO009000N1	39177.02	SGRBHS0017000N1
38707.20	SGRBHSO0010000N1	39177.03	SGRBHSO018000N1
38707.21	MS from SGRBHSO0010000N1	39177.04	SGRBHSO018000MS1
38707.22	MSD from SGRBHS00010000N1	39390.01	SGRBHS0016000N1
38708.01	SGRBHSO009002N1	39390.02	SGRBHS0017000N1
38708.02	SGRBHSO010000FD1	39390.03	SGRBHSO018000N1
38708.03	SGRBHSO010002N1	39390.04	SGRBHSO018000MS1

3.3.4 Decontamination Procedures

Prior to initiation of sampling activities, as well as between sampling locations, the hand auger, stainless-steel bowls, stainless-steel spoons, and other sampling implements were decontaminated using a distilled water and Liquinox wash followed by a distilled water rinse. The clean sampling tools were allowed to air dry before reuse.

3.4 Surveying

During the performance of the field investigation activities, the location of each soil boring was marked with a small flag for identification. Following the completion of the field

investigation activities, each soil boring was surveyed using Global Positioning System (GPS) equipment. The horizontal location and vertical elevation of each sampling location were measured (except for the SGR site second round sampling event locations, which were measured in the field by CH2M HILL personnel relative to a previously surveyed location). The horizontal coordinates for each location were determined relative to the existing Texas State Plane coordinates, with minimum accuracy of ±0.1 foot. Vertical elevations were determined relative to the 1929 National Vertical Geodetic Datum, with an accuracy of ±0.01 foot. Land surveying services for this project were provided by Howland Surveying of Laredo, Texas. Survey data is summarized in Table 3-4.

TABLE 3-4
GPS Survey Data for IWTP and SGR Sampling Locations
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Location	Northing	Easting	Elevation (ft, amsl)
SGRSB001	684175	1683222	466.03
SGRSB002	684221	1682893	457.64
SGRSB003	684265	1682393	449.17
SGRSB004	684589	1682406	449.17
SGRSB005	684564	1682578	452.80
SGRSB006	684424	1683301	466.00
SGRSB007	681307	1683691	475.95
SGRSB008	684311	1683925	481.87
SGRSB009	684272	1683905	401.66
SGRSB010	685327	1683677	467.36
SGRSB011	685303	1683794	472.03
SGRSB012	685293	1683990	486.10
SGRSB013	684223	1684116	487.16
SGRSB014	684100	1684421	498.25
SGRSB015	684997	1683706	475.74

amsl = above mean sea level

3.5 Management of Investigation-Derived Waste

Investigation-derived waste (IDW) generated during the SI included soil cuttings from soil boring activities, decontamination water, spent personal protective equipment (PPE), general trash, and miscellaneous contaminated materials (paper towels, rags, etc.). General trash was placed into plastic trash bags and disposed in a solid waste dumpster near the LIA. The remaining wastes were placed into 55-gallon steel drums, properly labeled, and staged on LIA property, pending disposal. Different types of waste (such as soils and waters) were not mixed. However, spent PPE and other solids were mixed with the soils. This mixing was done upon the advice of personnel from EET, Inc. of Austin, Texas, which provided waste disposal services for the project. One drum of soil cuttings, waste PPE, and plastic sheeting was generated. Approximately 10 gallons of decontamination waters were generated during the investigation. Due to the limited amount of decontamination waters that were generated, the decontamination waters were combined with decontamination waters generated at the same time during the investigation of another site (the Industrial Waste Treatment Plant) at the former LAFB.

Composite samples of the wastes were collected and analyzed by EET in order to characterize the wastes for disposal. The wastes were determined to be non-hazardous. The waste PPE and waste soils were disposed by EET at the City of Laredo Landfill, near Laredo, Texas. The decontamination waters were disposed at the Browning-Ferris Industries' Sunset Farms Landfill in Austin, Texas. The wastes generated during this investigation were disposed together with the wastes generated during the Industrial Waste Treatment Plant investigation. Copies of the waste disposal documentation are presented in Appendix B.

Section 4
Results of Investigation

4. Results of Investigation

A total of 33 soil samples, excluding QA and QC duplicate samples, were collected and analyzed during the SGR site SI. All of the soil samples were analyzed for total lead. Eight of the soil samples (excluding a QC duplicate sample) were also analyzed for lead by SPLP. The laboratory analytical data reports are presented together with the data validation report and validation check sheets in Appendix C. The detected concentrations of lead are compared to the TNRCC Risk Reduction Standard No. 2 (RRS2) Media-Specific Concentrations (MSCs). Total lead results are compared to the GWP-Res and SAI-Res MSCs. SPLP lead results are compared to the GW-Res MSC. The GWP-Res is the soil MSC for residential use based on groundwater protection. The SAI-Res is the soil MSC for residential use based on inhalation, ingestion, and dermal contact. The GW-Res is the groundwater MSC for residential use. The residential MSCs were considered for this investigation because the SGR site is currently developed as a residential area.

4.1 Site Soils

The soils encountered at the SGR site during soil sampling activities consisted primarily of dark yellowish brown to light yellowish brown, dry to moist, soft to moderately stiff, sandy silt. Small pieces of gravel were occasionally present. Gypsum was often present at depths of 6 inches or more. Groundwater was not encountered during the SGR site soil sampling activities.

4.2 Soil Analytical Results

A total of 33 soil samples, excluding QA/QC samples, were collected at the SGR site. Thirty samples were collected during the initial (May 1999) sampling event and three samples were collected during the confirmation sampling event (June 1999). All 33 soil samples were analyzed for total lead. Five samples from the May 1999 sampling event, including one QC sample, were also analyzed for lead by SPLP and re-analyzed for total lead (the regular sample associated with the QC sample was not analyzed for lead by SPLP or re-analyzed for

total lead). The three samples from the confirmation sampling event were also analyzed for lead by SPLP and re-analyzed for total lead. Five of the soil samples collected during the May 1999 sampling event were analyzed for pH and moisture content.

4.2.1 Total Lead

The analytical results for the lead analysis of the SGR site soil samples are presented in Table 4-1. The total lead concentrations for the SGR soil samples range from an estimated 3.4 mg/kg for sample SGRBHSO010002N1 to an estimated 36,200 mg/kg for sample SGRSBSO013000N1. The average concentration for the initial analysis is 1,130 mg/kg. If sample SGRBHSO013000N1 is considered an outlier and the result is ignored, then the maximum total lead concentration is 269 mg/kg for sample SGRBHSO005000N1, and the average total lead concentration is then 29.7 mg/kg. Most samples were reported to have a total lead concentration below 20 mg/kg. Only three samples (SGRBHSO005000N1, SGRBHSO013000N1, and SGRBHSO018000N1) exceed 200 mg/kg.

TABLE 4-1 SGR Site Soil Sample Analytical Results, Total Lead SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)	Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)
SGRBHSO001000N1	5/21/99	0-0.5	18.9	SGRBHSO009000N1	5/21/99	0-0.5	38.1
SGRBHSO001000N1	5/21/99	0-0.5	21.4 J*	SGRBHSO009002N1	5/21/99	2	13.4 J
SGRBHSO001002N1	5/21/99	2	12.8	SGRBHSO010000N1	5/21/99	0-0.5	3.8
SGRBHSO002000N1	5/21/99	0-0.5	50.8	SGRBHSO010000FD1	5/21/99	0-0.5	3.8 J
SGRBHSO002000N1	5/21/99	0-0.5	54.8*	SGRBHSO010002N1	5/21/99	2	3.4 J
SGRBHSO002002N1	5/21/99	2	7.9	SGRBHSO011000N1	5/21/99	0-0.5	5.0 J
SGRBHSO003000N1	5/21/99	0-0.5	7	SGRBHSO011002N1	5/21/99	2	5.2 J
SGRBHSO003002N1	5/21/99	2	6.4	SGRBHS0012000N1	5/21/99	0-0.5	9.2 J
SGRBHSO004000N1	5/21/99	0-0.5	68.9	SGRBHS0012002N1	5/21/99	2	6.1 J
SGRBHSO004000N1	5/21/99	0-0.5	71.7*	SGRBHSO013000N1	5/22/99	0-0.5	36,200 J
SGRBHSO004002N1	5/21/99	2	6.2	SGRBHSO013002N1	5/22/99	2	8.8 J
SGRBHSO005000N1	5/21/99	0-0.5	269	SGRBHSO014000N1	5/22/99	0-0.5	10.3 J
SGRBHSO005000N1	5/21/99	0-0.5	134*	SGRBHSO014002N1	5/22/99	2	6.4 J
SGRBHSO005002N1	5/21/99	2	7.8	SGRBHSO015000N1	5/22/99	0-0.5	9.9 J
SGRBHSO006000N1	5/21/99	0-0.5	10 J	SGRBHSO015002N1	5/22/99	2	15.4 J
SGRBHSO006000FD1	5/21/99	0-0.5	22.9 J	SGRBHSO016000N1	6/24/99	0-0.5	23.3

TABLE 4-1 SGR Site Soil Sample Analytical Results, Total Lead SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)	Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)
SGRBHSO006000FD1	5/21/99	0-0.5	14.4 J*	SGRBHSO016000N1	6/24/99	0-0.5	17.1 J*
SGRBHSO006002N1	5/21/99	2	8.3	SGRBHSO017000N1	6/24/99	0-0.5	22.6
SGRBHSO006002FD1	5/21/99	2	7.2	SGRBHSO017000N1	6/24/99	0-0.5	21.7 J*
SGRBHSO007000N1	5/21/99	0-0.5	10.9	SGRBHSO018000N1	6/24/99	0-0.5	265
SGRBHSO007002N1	5/21/99	2	6.2	SGRBHSO018000N1	6/24/99	0-0.5	76.5*
SGRBHSO008000N1	5/21/99	0-0.5	9.4	SGRBHSO018000MS1	6/24/99	0-0.5	171
SGRBHSO008002N1	5/21/99	2	4.3	SGRBHSO018000MS1	6/24/99	0-0.5	187*

^{* -} Reanalysis

Note: all detected concentrations exceed the TNRCC RRS2 GWP-Res standard of 1.5 mg/kg.

Generally, the results of the re-analysis for total lead corresponded well with the initial analysis. Only sample SGRBHSO018000N1 had a significant difference between the two analyses, with 265 mg/kg for the initial analysis and 76.5 mg/kg for the re-analysis. The maximum total lead among all samples upon re-analysis is 134 mg/kg for sample SGRBHSO005000N1 (excluding sample SGRSB013000N1). Using the results of the re-analysis, the overall average total lead concentration is slightly lower, at 1,120 mg/kg if the result for sample SGRBHSO013000N1 is included. The average total lead concentration if sample SGRBHSO013000N1 is not included is 19.1 mg/kg.

All of the detected lead concentrations exceed the TNRCC RRS2 GWP-Res standard for lead of 1.5 mg/kg. However, no site-specific background concentration for lead has been established. Only one sample, SGRBSO013000N1, exceeds the TNRCC RRS2 SAI-Res standard of 500 mg/kg.

4.2.2 SPLP Lead

The analytical results for the SPLP lead analysis of the SGR site soil samples are presented in Table 4-2. Eight soil samples (SGRBHSO001000N1, SGRBHSO002000N1, SGRBHSO004000N1, SGRBHSO005000N1, SGRBHSO006000FD1, SGRBHSO016000N1, SGRBHSO017000N1, and SGRBHSO01800N1), as well as one QC sample

J - Estimated

(SGRBHSO018000MS1) were analyzed for lead by SPLP. SPLP lead concentrations ranged from an estimated 0.0046 mg/L for sample SGRBHSO006000FD1 to 0.857 mg/L for sample

TABLE 4-2 SGR Site Soil Sample Analytical Results, SPLP Lead SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	SPLP Lead (mg/L)	Total Lead (mg/kg)
SGRBHSO002000N1	5/21/99	0.0307 J	50.8
SGRBHSO004000N1	5/21/99	0.0735 J	68.9
SGRBHSO005000N1	5/21/99	0.857	269
SGRBHSO006000FD1	5/21/99	0.0046 J	22.9
SGRBHSO001000N1	5/21/99	0.0471 J	18.9
SGRBHSO016000N1	6/24/99	0.0111 J	23.3
SGRBHS0017000N1	6/24/99	0.0135 J	22.6
SGRBHSO018000N1	6/24/99	0.016 J	265
SGRBHSO018000MS1**	6/24/99	0.218 J	171

J - Estimated

SGRBHSO005000N1. The second-highest SPLP lead concentration is an estimated 0.0735 mg/L for sample SGRBHSO004000N1. The average SPLP lead concentration is 0.141 mg/L.

Both SGRBHSO018000N1 and SGRBHSO018000MS1 were analyzed for SPLP lead. SGRBHSO018000MS1 is a field split of SGRBHSO018000N1. However, the reported SPLP lead concentrations differ significantly, with an estimated 0.016 mg/L for the N1 sample and an estimated 0.218 mg/L for the MS1 sample. Although care was taken to avoid inclusion of bullet fragments or lead shot in the collected soil samples, the most likely reason for the difference in SPLP lead concentrations between the field sample and the split sample is that a fragment of lead may have been included in the aliquot of soil analyzed from the split sample.

Of the eight samples (excluding the QC duplicate sample) analyzed for SPLP lead, the SPLP extracts from five of the samples were reported to exceed the TNRCC RRS 2 GW-Res standard of 0.015 mg/L for lead in groundwater for residential areas.

^{** -} QC duplicate sample for SGRBHS0018000N1 Shading indicates exceedance of the TNRCC RRS2 GW-Res standard of 0.015 mg/L

4.2.3 pH and Percent Moisture

Five soil samples (SGRBHSO003000N1, SGRBHSO005002N1, SGRBHSO008000N1, SGRBHSO010002N1, and SGRBHSO012000N1) were submitted for pH and percent moisture analysis. Values for pH range from 7.8 SU for sample SGRBHSO008000N1 to 8.6 SU for sample SGRBHSO003000N1. Moisture contents range from 6.0 percent for sample SGRBHSO012000N1 to 10.7 percent for sample SGRBHSO005002N1. No correlation is apparent between pH and moisture content or between pH or moisture content and depth. The pH and moisture content data are presented in Table 4-3.

TABLE 4-3SGR Site Soil Sample Analytical Results, pH and Moisture Content SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	pH (SU)	Moisture Content (%)
SGRBHSO003000N1	5/21/99	8.6	8.8
SGRBHSO005002N1	5/21/99	7.9	10.7
SGRBHSO008000N1	5/21/99	7.8	7.8
SGRBHSO010002N1	5/21/99	7.9	8.0
SGRBHSO012000N1	5/21/99	8.1	6.0

SU - Standard Units

4.3 Nature and Extent of Contamination

Based upon the historical use of the SGR site as a firing range and the analytical results for the soil samples, the potential contaminant of concern for SGR site soils is lead. Detectable concentrations of total lead were reported for all of the SGR site soil samples. Lead was the only constituent for which the soil samples collected during this SI were analyzed.

4.3.1 Total Lead

For the soil samples collected from a depth of 0-0.5 feet, the samples with the highest reported concentrations of total lead (greater than 20 mg/kg) were collected from the area just north of the original firing line (just north of Hillside Road). For the 2.0 feet depth samples, no such trend regarding the reported concentrations is apparent. However, the samples collected at a depth of 0-0.5 feet generally had higher concentrations of lead than the samples collected at a depth of 2.0 feet in the same borings. Only the samples collected

from borings SGRSB012 and SGRSB015 are exceptions, with the detected concentrations for the deeper samples slightly exceeding the concentrations for the shallower samples. Overall, the average total lead concentration for the 0-0.5 feet samples (excluding sample SGRBHSO013000N1) is 48.9 mg/kg. The average total lead concentration for the 2.0 feet samples is 7.91 mg/kg (only the original analytical results [none of the re-analyses] were used to calculate the average concentrations).

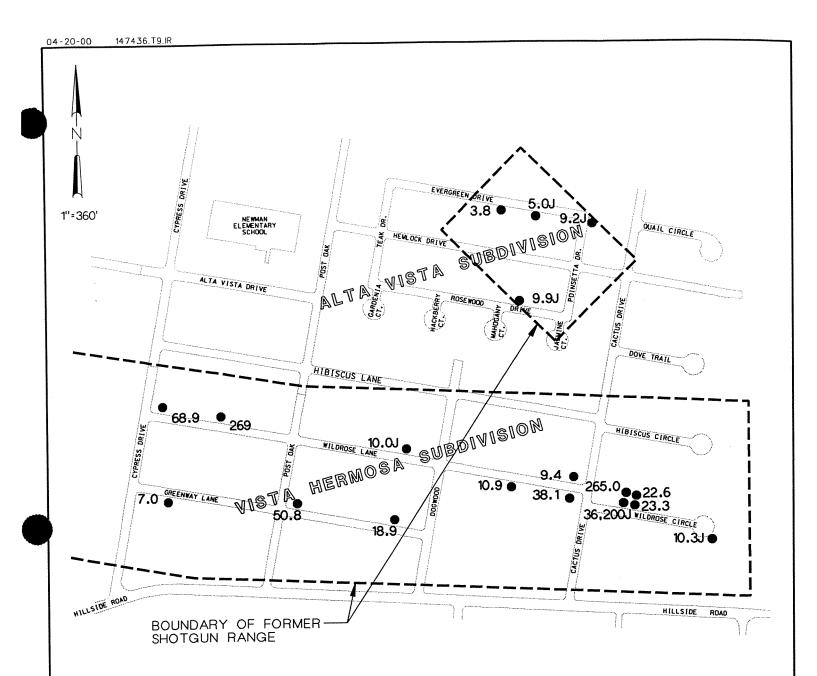
The distribution of total lead concentrations reported for SGR site soil samples at 0-0.5 feet depth is illustrated in Figure 4-1. The distribution of total lead concentrations reported for SGR site soil samples at the 2 feet depth is illustrated in Figure 4-2. For those samples where re-analysis for total lead was performed, only the initial total lead concentrations are shown.

The total lead concentrations reported for all of the SGR site soil samples exceed the TNRCC RRS 2 standard of 1.5 mg/kg for groundwater protection in residential soils. Only sample SGRBHSO013000N1 exceeds the TNRCC RRS 2 standard of 500 mg/kg for soil/air ingestion in residential soils. It is possible that the aliquot from sample SGRBHSO013000N1 that was analyzed by the laboratory contained a fragment of bullet or lead shot. Such an inclusion could account for the high concentration reported by the laboratory. It is noted that none of the three confirmatory soil samples collected from the same property as sample SGRBHSO013000N1 exceed the SAI-Res standard.

As mentioned in Section 3.1, the owners of the property where sample SGRBHSO013000N1 was collected stated that several truck-loads of topsoil had been brought onto their property over the years to fill low areas and replace eroded soil. They also stated that it was typical for other homeowners in the neighborhood to do the same. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

4.3.2 SPLP Lead

The SPLP analysis of selected SGR site samples was performed to assess whether the lead present in the soils is likely to leach into groundwater. Of the eight samples analyzed for SPLP lead (excluding the QC duplicate), the SPLP extracts from five of the samples were reported to exceed the TNRCC RRS 2 regulatory standard of 0.015 mg/L for lead in



LEGEND

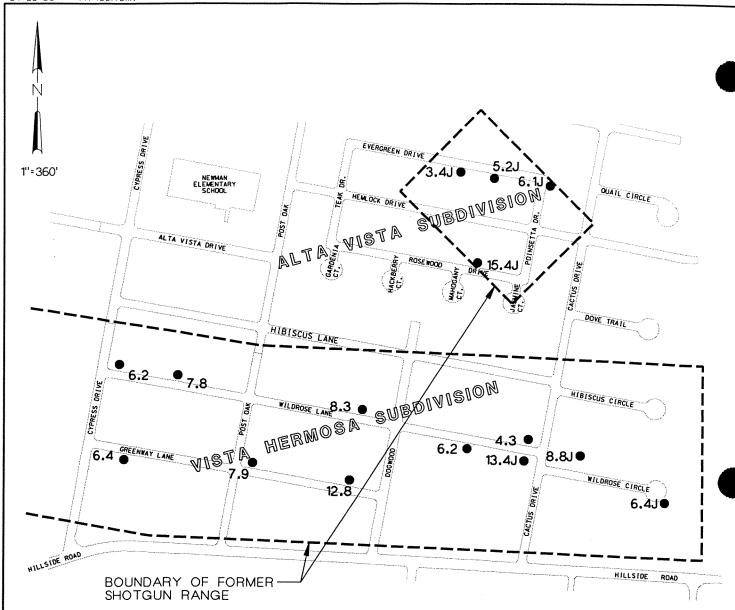
10.0 TOTAL LEAD CONCENTRATION (mg/kg)

> **ESTIMATED** J

> > FIGURE 4-1 TOTAL LEAD CONCENTRATIONS IN SOILS 0.5 FEET DEEP

Shotgun Range Site Former Laredo Air Force Base, Texas CH2MHI

4964



LEGEND

TOTAL LEAD 10.0 CONCENTRATION (mg/kg)

ESTIMATED

FIGURE 4-2 TOTAL LEAD CONCENTRATIONS IN SOILS 2 FEET DEEP

Shotgun Range Site Former Laredo Air Force Base, Texas CH2MH

4965



groundwater for residential areas. This indicates that the lead present in SGR site soils may have the potential to leach into groundwater. However, it is noted that the highest concentration of total lead from the deeper soil samples (an estimated 15.4 mg/kg for sample SGRBHSO015002N1) is lower than the total lead concentrations reported for each of the three shallow soil samples for which the result of the SPLP analysis did not exceed the TNRCC RRS2 GW-Res regulatory standard. This indicates that the extracts from an SPLP analysis of the deeper samples would not be likely to exceed or significantly exceed the GW-Res standard. It also indicates that significant leaching of the lead from the shallower soils is not occurring. Therefore, it is unlikely that the groundwater at the SGR site has been affected by past SGR site activities.

Section 5 Contaminant Fate and Transport

5. Contaminant Fate and Transport

As identified in Section 4, the potential contaminant of concern for the SGR site at the former LAFB is lead. The detected concentrations of total lead for all of the samples exceeded the TNRCC RRS2 GWP-Res standard for lead. However, the environmental fate of a contaminant will depend on a variety of factors, namely the physical and chemical behavior of the contaminants, the geological and hydrogeological conditions at each of the sites, and the potential routes of migration. Each of these factors is discussed in the following sections.

5.1 Contaminant Properties

Lead is a bluish-white, silvery or gray metal that is highly lustrous when freshly cut, but tarnishes when exposed to air. It is very soft and malleable, has a high density and low melting point and can be cast, rolled, and extruded. Lead is non-volatile. Although essentially insoluble in elemental form, salt compounds of lead can be very soluble in water. Lead is relatively immobile in soils, readily adsorbing to soil particles, particularly soils with high clay content or alkaline pH.

5.2 Geological and Hydrogeological Conditions of the Site

As described in Section 4.1 and Section 2.4.2, the soils at the SGR site consist of sandy silt and sandy clay loam. The moisture content of the soil is low, and the pH of the soil is somewhat alkaline. Gypsum and (caliche) are present within the soils. Groundwater was not encountered during the present investigation, but is assumed to be present at a depth of 8 to 10 feet bgs.

5.3 Potential Routes of Migration

Lead was detected in site soils at the SGR site. Because lead is non-volatile, the two primary routes of migration of lead at the site are: 1) physical transport, and 2) dissolution and migration with groundwater.

Physical transport can occur when soil particles to which lead is adsorbed are blown by wind or washed by rain or surface water. The limited amount of precipitation that occurs in the Laredo area makes physical transport a very likely route of migration. The dry soils can easily be blown by wind, and when rainfall does occur, it is frequently in heavy downpours which can easily wash away soil. As described in Section 3.1, erosion of the surficial soil takes place to an extent that homeowners within the SGR site area occasionally obtain fill soil for their property to replace eroded soils. It is also noted, however, that very little of the soil at the SGR site is exposed. Most of the site area is covered with pavement, buildings, or lawns/landscaping. Such cover reduces the likelihood of wind and water erosion significantly.

Dissolution and migration with groundwater occurs when precipitation (or lawn irrigation) dissolves the lead, causing it to leach downward through the soils into the groundwater. The contaminated groundwater then migrates across the site. The potential for the lead to leach into groundwater at the SGR site is limited by a number of factors. The soils contain clays to which lead can readily adsorb. The soils are also calcareous (they contain caliche) and have an alkaline pH. Lead leached at the surface will not remain in solution in this alkaline environment, and will tend to precipitate as hydroxides or carbonate mineral forms, thus limiting mobility of the lead. The limited amount of rainfall that occurs in the Laredo area will also reduce the likelihood of leaching of lead into the subsurface. The relative difference in total lead concentrations between the 0-0.5 feet depth samples and the 2.0 feet depth samples indicate that significant leaching of lead is not occurring. Therefore, dissolution and migration of the lead with groundwater is not a likely route of migration at the SGR site.

5.4 Potential Receptors

Because groundwater is not utilized as a water supply in the vicinity of the SGR site and because contamination of the groundwater by the lead in site soils does not appear to be likely, exposure to contaminated groundwater is not likely. Therefore, the potential receptors of the lead at the SGR site are those that have the potential to come into contact with site soils. This includes:

- Residents of the neighborhood constructed on the SGR site
- Construction personnel
- City and private utility personnel

Exposure would be through direct dermal contact or through ingestion/inhalation of lead adsorbed to airborne particles. Those involved in activities that disturb the site soils (construction, excavation, etc.) would be most at risk for exposure.

It is noted that only one of the soil samples collected at the SGR site exceeded the TNRCC RRS2 SAI-Res standard for lead. However, that detected concentration may be an outlier caused by inclusion of a piece of lead shot or bullet fragment in the aliquot of soil analyzed by the laboratory. None of the confirmation samples collected at the same property exceeded the SAI-Res standard.

Section 6 Conclusions and Recommendations

6. Conclusions and Recommendations

6.1 Conclusions

The SGR site was utilized as a gunnery and firearms training area when the LAFB was in operation. As such, the expected contaminant of concern for the site is lead. The results of the investigation indicate that:

- Lead is present in the SGR site soils at concentrations exceeding the TNRCC RRS2
 GWP-Res standard (1.5 mg/kg). However, there is no site-specific background
 concentration for lead. The detected lead concentrations are generally low, with only
 nine of the soil samples (and one QC sample) containing over 20 mg/kg of total lead.
 Only one of the soil samples, SGRBHSO013000N1, exceeds the TNRCC RRS2 SAI-Res
 standard of 500 mg/kg.
- The high concentration exhibited by sample SGRBHSO013000N1 (36,200 mg/kg) appears to be an outlier caused by the inclusion of a piece of lead shot or fragment of bullet within the aliquot of soil analyzed by the laboratory. Therefore, the analytical result may not represent the actual lead content of the soil. The deeper sample collected from the same boring contained only an estimated 8.8 mg/kg of total lead. The three confirmation samples collected at the same property contained lead at 265 mg/kg or less.
- The soil samples exhibiting the highest concentrations of total lead were collected from the vicinity of the original firing line north of present day Hillside Road. Further, the detected lead concentrations for samples collected from a depth of 2.0 feet are lower than the concentrations reported for the samples collected from 0-0.5 feet depth in the same borings. Only borings SGRSB012 and SGRSB015 are exceptions, with the deeper sample only slightly higher than the shallower sample.
- The detected lead concentrations in the SPLP extracts for five of the eight samples
 analyzed for lead by SPLP (excluding the QC duplicate) were found to exceed the
 TNRCC RRS2 GW-Res standard of 0.015 mg/L (all SPLP samples were shallow

samples). However, since the total lead concentrations are lower for the deeper soil samples than for the shallow soil samples, and the three samples for which the SPLP extract did not exceed the GW-Res standard had total lead concentrations above the highest total lead concentration for the deeper soil samples, it appears that significant leaching of the lead into the subsurface is not taking place.

- The potential for the lead detected in site soils to migrate into groundwater is limited by a number of factors: the clay content of the soil, the presence of carbonates (caliche) in the soil, the alkaline pH of the soil, and the limited rainfall in the Laredo area. Leaching of the lead into groundwater is therefore not likely.
- The most likely route of contaminant migration and exposure appears to be through direct contact (dermal contact and inhalation/ingestion) with site soils. As stated above, only one soil sample, an apparent outlier, was reported to contain lead at a concentration exceeding the SAI-Res standard.
- Erosion of site soils by wind and surface water has resulted in many homeowners at the SGR site purchasing topsoil to fill in low areas and to replace eroded soil. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

6.2 Recommendations

Based upon the above conclusions, CH2M HILL recommends that no further action is necessary at the SGR site.

7. References

- The following references were utilized in the preparation of this SI Report.
- CH2M HILL, Phase I Remedial Investigation Report, Fire Training Area, Former Laredo AFB, Texas, January, 1999.
- Frew, Mike, <u>Updated Baseline TPH Cleanup using the Massachusetts Surrogate Approach</u> and the TNRCC Memo Entitled "Implementation of the Existing Risk Reduction Rule" dated July 23, 1998, TNRCC interoffice memorandum, March 2, 1999.
- National Library of Medicine, 1999, TOXNET online database (www.toxnet.nlm.nih.gov/servlets/simpl-search?1.5.0), National Library of Medicine, Toxicology and Environmental Health Information Program, Specialized Information Services Division, Bethesda, Maryland.
- Parker, Robert H. Ph.D., <u>Physiography, Geology, Groundwater and Soils for Webb County, and Especially for Laredo, Texas</u>, February, 1996.
- Raba-Kistner, 1996, <u>Annual Ground Water Monitoring Report December 1995, LPST ID</u>
 No. 95021, Airport Fuel Farm, 518 Flightline, Laredo, Texas, Raba-Kistner
 Consultants, Inc., San Antonio, Texas, January 12, 1996.
- TDOT (Texas Department of Transportation), aerial photograph, August 19, 1970, scale 1:12,800.
- USACE, <u>Draft RI Report</u>, <u>Fire Training Area</u>, <u>Formerly Used Defense Site-Laredo Air Force Base</u>, <u>Laredo</u>, <u>Texas</u>, US Army Corps of Engineers, Tulsa District, (no date).
- USACE, <u>Former Laredo Air Force Base Final Site Investigation Report, Sanitary Landfill</u>, US Army Corps of Engineers, Tulsa District, March, 1998.
- USDA (US Department of Agriculture), 1952, aerial photography, March 23, 1952, scale 1:20,000.
- USDA (US Department of Agriculture), Soil Conservation Service, <u>Soil Survey, Webb</u> <u>County, Texas</u>, (date unknown).



BORING NUMBER SGRSB001

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 466.0 LOCATION: SGR Former Laredo AFB SI PROJECT: Dougherty NAME OF DRILLER: DRILLING CONTRACTOR: NA SIZE/TYPE OF BIT: Hand Auger DRILLING METHOD/EQUIPMENT: DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: START: 0835 5/21/99 END: 0845 LOGGER: Dougherty WATER LEVELS: NA COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, TEST RECOVERY (IN) DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY, #/TYPE RESULTS Time TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" MINERALOGY. OVM (ppm): Headspace Analysis (N) Sandy (fine) silt, brown, dry, moderately stiff, moist ML at 0.7 ft. Small (1/4-inch) pieces of black material visible in soil. Material flaked when cut with knife. TD = 2 ft Boring backfilled with topsoil 10 12 13



BORING NUMBER SGRSB002

SHEET 1

OF 1

SOIL BORING LOG

Former Laredo AFB SI LOCATION SGR ELEVATION (TBM or MSL): 457.6 PROJECT: DRILLING CONTRACTOR: NA NAME OF DRILLER: Dougherty SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 **OVERBURDEN THICKNESS:** END: 0920 LOGGER: Dougherty WATER LEVELS: NA START: 0900 5/21/99 COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD SAMPLE INTERVAL (FT) PENETRATION SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RECOVERY (IN) TEST MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, RESULTS #/TYPE 6"-6"-6"-6" OR CONSISTENCY, SOIL STRUCTURE, TESTS, AND INSTRUMENTATION. MINERALOGY. OVM (ppm): Headspace Analysis (N) Sandy (fine) silt, brown, dry, moderately stiff, pieces of black material noted 1.0 No more black material 1.2 Begin seeing gypsum in soil TD = 2 ftBoring backfilled with topsoil 10 12



BORING NUMBER SGRSB003

SHEET 1

OF 1

SOIL BORING LOG

449.2 ELEVATION (TBM or MSL): Former Laredo AFB SI LOCATION: SGR PROJECT: NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger deg from vertical DIRECTION OF HOLE: vertical inclined . TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: > 2 ft END: 0945 LOGGER: Dougherty START: 0930 5/21/99 WATER LEVELS: NA SOIL DESCRIPTION COMMENTS DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (IN) TEST #/TYPE MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, RESULTS Time OR CONSISTENCY, SOIL STRUCTURE, TESTS, AND INSTRUMENTATION. 6"-6"-6"-6" Headspace Analysis OVM (ppm): MINERALOGY. (N) Sandy (fine) silt, brown, dry, moderately stiff, some ML pieces of black material 1.2 As above, yellowish brown, moist, some gypsum Boring backfilled with topsoil TD = 2 ft 10 11 12 13



BORING NUMBER PROJECT NUMBER 147436.T9.FW

SGRSB004

SHEET 1

OF 1

SOIL BORING LOG

<u></u>						51 514 510N (50N - 140N)
PROJEC		Former Lar		SI	LOCATION: SGR	ELEVATION (TBM or MSL): 449.2 NAME OF DRILLER: Dougherty
DRILLING	G CONTRA		NA	11 1 1		NAME OF DRILLER: Dougherty SIZE/TYPE OF BIT: 4"
DRILLING	G METHOD ON OF HO	/EQUIPME	NI:	Hand Auger lined d	eg from vertical	Old (True of otto)
	IRDEN THE		> 2 ft		H DRILLED INTO ROCK: 0	TOTAL DEPTH OF BORING: 2 ft
	LEVELS:				T: 0955 5/21/99 END: 1005	LOGGER: Dougherty
	ELOW SURF			STANDARD	SOIL DESCRIPTION	COMMENTS
	SAMPLE IN)	PENETRATIO		
		RECOVERY		TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,
	Time		#/TYPE	RESULTS	MOISTURE CONTENT, RELATIVE DENSITY,	TESTS, AND INSTRUMENTATION.
				6"-6"-6"-6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	OVM (ppm): Headspace Analysis
			ML	(1.4)	Sandy (fine) silt, dark yellowish brown, dry,	_
_					moderately stiff	
-	\$34x					_
1 _					1.0 As above, some gypsum, slightly moist	
-					1.0 As above, some gypodin, original motor	_
_						_ <u></u>
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_					TD = 2 ft	Boring backfilled with topsoil
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BORING NUMBER SGRSB005

SHEET 1

OF 1

SOIL BORING LOG

452.8 LOCATION: SGR ELEVATION (TBM or MSL): Former Laredo AFB SI PROJECT: NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: > 2 ft LOGGER: Dougherty END: 1035 START: 1020 5/21/99 WATER LEVELS: NA COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (IN) TEST MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, #/TYPE RESULTS Time OR CONSISTENCY, SOIL STRUCTURE, TESTS, AND INSTRUMENTATION. 6*-6*-6*-6* Headspace Analysis MINERALOGY. OVM (ppm): (N) ML Sandy (fine) silt, yellowish brown, dry, moderately stiff, some black material noted 0.7 As above, slightly moist, no black material 1.2 As above, gypsum present in soil Boring backfilled with topsoil TD = 2 ft

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BORING NUMBER SGRSB006

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 466.0 PROJECT: Former Laredo AFB SI LOCATION: SGR NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: NA SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 2 ft OVERBURDEN THICKNESS: DEPTH DRILLED INTO ROCK: 0 START: 1125 END: 1140 LOGGER: Dougherty 5/21/99 WATER LEVELS: NA COMMENTS DEPTH BELOW SURFACE (FT) STANDARD SOIL DESCRIPTION SAMPLE INTERVAL (FT) **PENETRATION** SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RECOVERY (IN) TEST RESULTS MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, #/TYPE Time TESTS, AND INSTRUMENTATION. 6"-6"-6"-6" OR CONSISTENCY, SOIL STRUCTURE, OVM (ppm): Headspace Analysis MINERALOGY. (N) Sandy (fine) silt, dark yellowish brown, moderately soft, dry Triplicate samples collected for QA/QC analysis 1.5 As above, slightly moist, gypsum present Triplicate samples collected for QA/QC TD = 2 ft analysis Boring backfilled with topsoil 10 11 12 13



BORING NUMBER SGRSB007

SHEET 1

OF 1

SOIL BORING LOG

PROJECT:		Former Laredo AFB	SI	LOCA	TION: SGR		ELEVATION (TBM or MSL):	476.0
DRILLING C							NAME OF DRILLER:	Dougherty
			Hand Auger				SIZE/TYPE OF BIT:	4"
				from ve	ertical			
- Contraction of the Contraction		CKNESS: > 2 ft	DEPTH I	DRILLE	D INTO ROCK :	: 0	TOTAL DEPTH OF BORING	: 2 ft
WATERLE			START:	1150	5/21/99	END: 1200	LOGGER: Dougherty	
DEPTH BELC			STANDARD		SOIL D	ESCRIPTION	COMMENTS	
		ERVAL (FT)	PENETRATION					
		RECOVERY (IN)	TEST	SOIL	NAME, USCS GR	OUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING	RATE,
	Time	#/TYPE	RESULTS	MOIST	TURE CONTENT,	, RELATIVE DENSITY,	DRILLING FLUID LOSS,	

SAMPLE NTERVAL (FD FIRED V (N) FIRED	WATER	LEVELS:	NA		START:	1150 5/21/99 END: 1200	LOGGER: Dougherty
SAMPLE INTERVAL (FT) Time RECOVERY (IN) RECOVERY (IN) TEST TIME RECOVERY (IN) RESULTS OF 4-8-8-8 SOIL NAME, USCS GROUP SYMBOL, COLOR, IN OF 4-8-8 SOIL NAME, USCS GROUP SYMBOL, COLOR,					STANDARD	SOIL DESCRIPTION	COMMENTS
Time TEST RESULTS SOL, NAME, LUSS SROUP SYMBOL, COLOR, WITTPE RESULTS SOL NAME, LUSS SROUP SYMBOL, COLOR, MOSTATE CONTENT, RELATIVE DENSITY, OR OCCUSTENCY, SOL STRUCTURE, MIL MIL MIL 1)	PENETRATION		
Time			BECOVERY	((IN)		SOIL NAME, USCS GROUP SYMBOL, COLOR.	DEPTH OF CASING, DRILLING RATE,
Septiment Sept		i		#/TYPE		MOISTURE CONTENT, RELATIVE DENSITY,	
(N) MINERALOGY. OWN (ppm): Headspace Analysis ML Sandy (fine) silt, dry, moderately stilf 1		1 11110					TESTS, AND INSTRUMENTATION.
ML Sandy (fine) silt, dry, moderately stiff 1							OVM (ppm): Headspace Analysis
1 .5 As above, slightly moist, gypsum present 1.9 ft Gravel, silty, day, light brown, caliche nodules 8 oring backfilled with topsoil 1				ML.		Sandy (fine) silt, dry, moderately stiff	_
9	_					-	
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9	'						-
Compact Comp	_					1.5 As above, slightly moist, gypsum present	-
Compact Comp	-					1 9 ft Gravel silty dry light brown caliche nodules	
TD = 1.9 ft - auger refusal Boring backfilled with topsoil TD = 1.9 ft - auger refusal Boring backfilled with topsoil TD = 1.9 ft - auger refusal Boring backfilled with topsoil TD = 1.9 ft - auger refusal Boring backfilled with topsoil TD = 1.9 ft - auger refusal Boring backfilled with topsoil	2 -			GM			
4						TD = 1.9 ft - auger refusal -	Boring backfilled with topsoil
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BORING NUMBER SGRSB008

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 481.9 LOCATION: SGR Former Laredo AFB SI PROJECT: NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: NA SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger DIRECTION OF HOLE: vertical inclined deg from vertical DEPTH DRILLED INTO ROCK: 0 TOTAL DEPTH OF BORING: 2 ft OVERBURDEN THICKNESS: WATER LEVELS: NA START: 1355 5/21/99 END: LOGGER: Dougherty COMMENTS DEPTH BELOW SURFACE (FT) STANDARD SOIL DESCRIPTION PENETRATION SAMPLE INTERVAL (FT) RECOVERY (IN) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, TEST DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY, #/TYPE RESULTS Time TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" MINERALOGY. OVM (ppm): Headspace Analysis (N) ML Sandy (fine) silt, dark yellowish brown, 10 YR 4/6, some gravel, dry GM 1.0 Silty Gravel, yellowish brown, 10 YR 5/6 TD = 2.0 ftBoring backfilled with topsoil 5 10 11 12 13



PROJECT NUMBER BORING NUMBER 147436.T9.FW SGRSB009

SB009 SHEET 1

OF 1

SOIL BORING LOG

								ELEVATION (TDM or MCL)	401.7
PROJEC		Former La		SI	LOCATION: S	GR		ELEVATION (TBM or MSL):	401.7 Dougherty
DRILLING	G CONTRA	CTOR:	NA	11 1 4				NAME OF DRILLER : SIZE/TYPE OF BIT :	4"
DRILLING	G METHOD	/EQUIPME	:NI:	Hand Auger lined deg	from vertical			OIZETTI E OF DIT.	
DIRECTI	ON OF HO	LE: vertic	> 2 ft		ORILLED INTO R	OCK · 0		TOTAL DEPTH OF BORING	i: 2 ft
	IRDEN THI LEVELS :		Z II	START:		/21/99 END: 1505		LOGGER: Dougherty	
	ELOW SURF			STANDARD		SOIL DESCRIPTION		COMMENTS	
		TERVAL (FT	`	PENETRATION					
	SAMPLE IN	RECOVERY	((IN)	TEST	SOIL NAME, USO	CS GROUP SYMBOL, COLOR	,	DEPTH OF CASING, DRILLIN	G RATE,
	Time	NECOVEIT	#/TYPE	RESULTS	MOISTURE CON	TENT, RELATIVE DENSITY,		DRILLING FLUID LOSS,	
	1 11110			6"-6"-6"-6"	OR CONSISTEN	CY, SOIL STRUCTURE,		TESTS, AND INSTRUMENTAT	
				(N)	MINERALOGY.			OVM (ppm): Headspace	Analysis
			ML		Sandy (fine) silt, da	ark yellowish brown 10 YR 4/6,	-		-
-	2300				dry, some gravel @	g about 0.5 π	_		_
_							_		
1			ML-GM		1 O Candy silt brow	vnish yellow, 10 YR 6/6, some			
_			WIL-GIVI		gravel, dry	Writstr yellow, 10 111 0/0, 30/110	_		_
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BORING NUMBER SGRSB010

SHEET 1

OF 1

SOIL BORING LOG

PROJECT: Former Laredo AFB SI LOCATION: SGR ELEVATION (TBM or MSL): 467.4 NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: NA SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 2 ft OVERBURDEN THICKNESS: DEPTH DRILLED INTO ROCK: 0 END: 1525 LOGGER: Dougherty START: 1510 5/21/99 WATER LEVELS: NA COMMENTS DEPTH BELOW SURFACE (FT) STANDARD SOIL DESCRIPTION SAMPLE INTERVAL (FT) PENETRATION SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RECOVERY (IN) **TEST** #/TYPE MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, RESULTS Time TESTS, AND INSTRUMENTATION. 6"-6"-6"-6" OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY. Headspace Analysis (N) OVM (ppm): Silty fine sand, light yellowish brown, 2.5 Y 6/4, dry SM-ML Triplicate samples collected for QA/QC 1.5 As above, with some gypsum TD = 2.0 ft Boring backfilled with topsoil 10 11 12 13



BORING NUMBER SGRSB011

SHEET 1

OF 1

SOIL BORING LOG

472.0 LOCATION: SGR ELEVATION (TBM or MSL): Former Laredo AFB SI PROJECT: DRILLING CONTRACTOR: NAME OF DRILLER: Dougherty SIZE/TYPE OF BIT: DRILLING METHOD/EQUIPMENT: Hand Auger deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: > 2 ft LOGGER: Dougherty START: 1535 5/21/99 END: 1550 WATER LEVELS: NA COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (IN) TEST DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY, #/TYPE RESULTS Time OR CONSISTENCY, SOIL STRUCTURE, TESTS, AND INSTRUMENTATION. 6*-6*-6*-6* MINERALOGY. OVM (ppm): Headspace Analysis (N) ML-SM Sandy (fine) silt, dark yellowish brown, 10 YR 4/4, 0.4 As above, yellowish brown 10 YR 5.6, moist SM-ML 1.2 Weathered Sandstone & Sandy silt, moist, light olive brown, 2.5 Y 5/6, some avasum Boring backfilled with topsoil TD = 2.0 ft10 11 12 13



BORING NUMBER SGRSB012

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 486.1 PROJECT: Former Laredo AFB SI LOCATION: SGR NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: NA DRILLING METHOD/EQUIPMENT: SIZE/TYPE OF BIT: Hand Auger DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 **OVERBURDEN THICKNESS:** START: 1600 5/21/99 END: 1615 LOGGER: Dougherty WATER LEVELS: NA SOIL DESCRIPTION COMMENTS DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (IN) **TEST** #_TYPE RESULTS MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, Time TESTS, AND INSTRUMENTATION. 6"-6"-6"-6" OR CONSISTENCY, SOIL STRUCTURE, OVM (ppm): Headspace Analysis MINERALOGY. (N) ML Sandy (fine) silt, dark yellowish brown, 10 YR 4/6, 0.6 As above, yellowish brown, 10 YR 5/8, gypsum streaks Some gypsum crystals below 1.5 ft TD = 2.0 ft Boring backfilled with topsoil 3 10 11 12 13



BORING NUMBER SGRSB013

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 487.2 LOCATION: SGR Former Laredo AFB SI PROJECT: Dougherty NAME OF DRILLER: DRILLING CONTRACTOR: SIZE/TYPE OF BIT: Hand Auger DRILLING METHOD/EQUIPMENT: DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: START: 0815 5/22/99 END: 0830 LOGGER: Dougherty WATER LEVELS: NA COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, TEST RECOVERY (IN) DRILLING FLUID LOSS, RESULTS MOISTURE CONTENT, RELATIVE DENSITY, #/TYPE Time TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" OVM (ppm): Headspace Analysis MINERALOGY. (N) Sandy (fine) silt, dark yellowish brown, 10 YR 4/4, dry, some small gravel, some black material as in 0.6 As above, moist, with gypsum, light yellowish brown, 10 YR 5/6 1.8 Sandy silt, light yellowish brown, 10 YR 6/4, dry Boring backfilled with topsoil TD = 2.0 ft3 8 10 11 12 13



BORING NUMBER SGRSB014

SHEET 1

OF 1

SOIL BORING LOG

ELEVATION (TBM or MSL): 498.2 LOCATION: SGR PROJECT: Former Laredo AFB SI NAME OF DRILLER: Dougherty DRILLING CONTRACTOR: NA DRILLING METHOD/EQUIPMENT: SIZE/TYPE OF BIT: Hand Auger DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 2 ft DEPTH DRILLED INTO ROCK: 0 OVERBURDEN THICKNESS: END: 0855 START: 0840 5/22/99 LOGGER: Dougherty WATER LEVELS: NA SOIL DESCRIPTION COMMENTS DEPTH BELOW SURFACE (FT) STANDARD SAMPLE INTERVAL (FT) PENETRATION DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, RECOVERY (IN) TEST #/TYPE RESULTS MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, Time TESTS, AND INSTRUMENTATION. 6"-6"-6"-6" OR CONSISTENCY, SOIL STRUCTURE, OVM (ppm): Headspace Analysis MINERALOGY. (N) Sandy (fine) silt, dark yellowish brown, 10 YR 3/4, mottled with 10 YR 6/8 & 2.5 Y 6/2, dry 1.5 Sandy (fine) silt, grey, 2.5 Y 6/2, dry, gypsum crystals Boring backfilled with topsoil 2.0 Sandy silt, yellowish brown, 10 YR 5/6 and grey 2.5 Y 6/2, moist, gypsum crystals TD = 2.0 ft 3 6 8 10 11 12 13



BORING NUMBER SGRSB015

SHEET 1

OF 1

SOIL BORING LOG

PROJECT: Former Laredo AFB SI LOCATION: SGR ELEVATION (TBM or MSL): 475.7 DRILLING CONTRACTOR: NAME OF DRILLER: Dougherty Hand Auger DRILLING METHOD/EQUIPMENT: SIZE/TYPE OF BIT: DIRECTION OF HOLE: vertical inclined deg from vertical OVERBURDEN THICKNESS: > 2 ft DEPTH DRILLED INTO ROCK: 0 TOTAL DEPTH OF BORING: 2 ft WATER LEVELS: NA START: 0920 5/22/99 END: 0935 LOGGER: Dougherty DEPTH BELOW SURFACE (FT) STANDARD SOIL DESCRIPTION COMMENTS SAMPLE INTERVAL (FT) **PENETRATION** RECOVERY (IN) **TEST** SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RESULTS MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, Time OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" TESTS, AND INSTRUMENTATION. MINERALOGY. OVM (ppm): Headspace Analysis ML-SM Sandy (fine) silt, dark yellowish brown, 10 YR 4/4. slightly moist, some gravel, some gypsum below 0.5 1.3 As above, dark yellowish brown, 10 YR 4/6, moist, at 18 inches some black material similar to that seen in first few borings is observed TD = 2.0 ft Boring backfilled with topsoil 10 11 12

Appendix B IDW Disposal Documentation



PROJECT NUMBER	PROJECT NAME	
14 7436 T9. FW	Former Larede	SHEET _ OF _
	1/1/9	

IDW DRUM INVENTORY LIST

DATES OF PRO	JECT:			
DRUM NUMBER	DATE FILLING BEGUN	DATE FILLED	CONTENTS	NAME OF PERSON FILLING DRUM
1	5/18/99	5/18/99	Soil Cuttings HWOOL Soil Cuttings HWOOL	Dougherty
2	5/18/99	5/20/99	Scilcultings MWODI,	Dougherty
3	5/1 8 /99	5/18/99	Soil cuttings INTOMWOOD	Dougherty
4	5/19/99	5/17/99	5011 cuttings INTP \$8001, \$8002,\$8003,\$8004	Dougherty
5	5/18/ 99	5/18/99	50:102++ings INTPHW002	Dougherty
6	5/18/19	5/19/99	Deconwater, all borings	Dougherty
7	5/19/99	5/20/99	Decon water, all I with bonic	s Dougherty
8	5/20/99	5/20/99	Development Water INTPHWO	03 Dougherty
9	5/20/99	5/20/99	Dev Water, IWTPMWOO!	Dougherty
10	5/20/99	5/20/99	Der Water, INTP MWOOZ	Dougherty
11	5/24/99	5/24/99	Soil from SGR barings	Dougherty
12	5/24/99	5/24/99	Purge water, All INTPINOIS	
13			v'	J /
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EET Environmental Services LLC

June 23, 1999

Mr. Dave Epperly CH2M Hill 502 S. Main, 4th Floor Tulsa, OK 74103

RE: Manifests for Waste at the Former Laredo AFB

Dear Dave:

Per Chuck Dougherty's instructions, I am sending you the manifests for the waste currently staged at Laredo International Airport. Based upon the analytical data, both the purge/decon water and the soil cuttings are classified as Non-hazardous Class II wastes. The soil cuttings will be disposed of at the City of Laredo Landfill. The purge/decon water will be disposed of at the BFI facility here in Austin.

I spoke to Randall Kepenbrock, Manager of the City of Laredo landfill, and he stated that they could accept the Class II soil waste. He requested that a non-hazardous waste manifest be utilized and that the corresponding analytical data be attached to this manifest. The City landfill does not provide their own non-hazardous manifests, so I was forced to use a non-hazardous manifest from another landfill facility. Mr. Kepenbrock stated that this was acceptable. This is the cause of the sorry appearance of the manifest for the soil cuttings. I had to whiteout existing facility information over which I wrote the information for the Laredo landfill. Analytical data that will be submitted to the Laredo landfill is attached for your review.

If you have any questions regarding the manifests, please do not hesitate to give me a call.

Please sign the manifest as the generator's representative and then federal express back to me for Friday delivery. I am planning to mobilize to the site on Monday, June 28th. I have included a completed Fed Ex return shipment label for your convenience.

Again, please do not hesitate to give me a call if you have any questions.

Harasımarıtı

Regulatory Chemist

Waste Systems. FERRIS INDUSTRIES

TEXAS NON-HAZARDOUS SPECIAL WASTE MANIFEST

NO. 356584

GENE	RATOR
GENERATOR NAME U.S. Army Corp. of Engineers	
ADDRESS 1645 South 101 East Avenue	ADDRESS Laredo TX 78401
Tulsa OK 74128-4629	, , , , , , , , , , , , , , , , , , , ,
PHONE NO. [9] 8 (6 6 9 1 5 1 9	STATE GENERATOR ID NUMBER CESSIG
T.N.R.C.C. DESCRIPTION	D-DRUM
Purge/Decon	Water D CCARTON
BFI WASTE CODE TX 755 000623	3 NP30284 1.TRUCK
T.N.R.C.C. DESCRIPTION	OF WASTE P-POUNDS Y-YARDS
	O-OTHER
BFI WASTE CODE	
T.N.R.C.C. DESCRIPTION	OF WASTE
BFI WASTE CODE	
properly described, classified and packaged, and is in proper condition for transf of a previously restricted hazardous waste subject to the Land Disposal Pestri requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 DENERATOR AUTHORIZED AGENT NAME SIGNATURE	portation according to applicable regulations, AND, if the waste is a treatment residue ctions, I certify and warrant that the waste has been treated in accordance with the CFR Part 261. SHIPMENT DATE
TRANSP	ORTER to the state of the state
TRUCK NO. # 00Z	PHONE NO. 512 - 291 - 1100
MANSPORTER NAME <u>EET Environmental Services</u>	DRIVER NAME (PRINT) James Zezula
NODRESS 11405 Conray Lane	VEHICLE LICENSE NO STATE 1HN-T66 / Texas
Manchaca, TX 78652	STATE TRANSPORTER ID NO. 85665
HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE	I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERE
SENERATOR SITE LISTED ABOVE.	WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.
RIVER SIGNATURE SHIPMENT DATE	DRIVER SIGNATURE DELIVERY DATE
DESTINA	ATION
HTE NAME BROWNING-FERRIS IND. / SUNSET FARMS LAN	IDFILL PHONE NO. 5 1 2 2 7 2 4 3 2 7
DDBESS 9912 GILES RD. AUSTIN, TX 78754	PHONE NO.
DDRESS 9912 GILLS ND. AOSTIN, 1X 70704	MSW#1447
S	THORE NO.
Solitos	MSW#1447

AUG 27 '99 09: SAM CHEMPILL A	P.3/4
TO CARE THE HUMANICATION SEEDS M. WASTERMANIES	
GENERATOR	en en en en en en en en en en en en en e
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BFI WASTE CODE 12 TX 1155 000000000000000000000000000000000	Times.
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BFI WASTE CODE	
DESCRIPTION OF WASTE	
of wish coof with the same of	
ENERGY OF DEATH (CAUCINE) reported by 40 OFR Part.	181 or any applicable state law, has
DENERAZOR'S DENTIFICATION'S Periody Centry that the above named material is not a hazardous waste as defined by 40 OFR Part in properly presented classified true president and is in proper condition to transportation according to applicable regulations; ANRI a gravious by textrices of hazardous waste subject to the land Decomp Best const; and voter with the veste has be requirementated for particles and surprise material countries and subject to the land Decomp Best const; and waste that waste has be requirementated. Of the particles and surprise materials as a contract of the particles and surprise materials.	en frested in accordance with the
TO WET ANOTHOR IN THE PARTY OF	基準是某一
TRANSPORTER	A STATE OF THE STA
TRUCK NO. 174 # 007E	
TRANSPORTER NAME <u>EET ENVIRONMENTAL SERVICES</u> DRIVER NAME (PRINT) JOMES	THE PARTY OF THE P
ADDRESS 11405 CONTOU LANE VEHICLE LICENSE NO STATE 14N-	Tole / Texas
Manchaca 178652	A Care
HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE THE THE ABOVE IN	MED MATERIAL WAS DELIVERED
GENERATOR SITE LISTED ABOVE	
ONLY BONATURE TO THE PROPERTY OF THE PROPERTY	
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7)

(ity of Laredo Landfill Hwy 359 Laredo, TX



39321

NON-HAZARDOUS MANIFEST

	GENE	RATOR			
Address 1645 500	l Corp of Engineers th 101 East Avenue < 74128–4629 7-7519	/1 ~ ~		doInt.A	irport 2401
Description (of Waste Materials	Profile Number	Total Quantity	Unit of Measure	Container Type
Non hozordous	soil cuttings	seealtache Onalytico			DM
Part 261 or any applicat	above-described materials a ple state law, have been fully ion for transportation according to the state of t	y and accurately	described, cl	assified and	•
	TRANS				
Address 11405 Con Monchael I hereby acknowledge rec	Environmental Svs. 20 TX 78652 reipt of the above described from the generator site listed		FOR downledge that received from	n the generat	e described tor site were
Driver Signature	Shipment Date	Driver Signatur	e ·	Deliver	y Date
· ·		NOITA	. •	,	
Site Name City of I	laredo Landfill	_ Phone Num	ber _(195	6) 795-25	5/5
	9, Laredo TX		***************************************	When the second	
Disposal Location: N	orth Eas		Level		MANAGEMENT .
I hereby acknowledge re	ceipt of the above described	materials.			
Name of Authorized Age	ent (Print)	Signature		Rece	ipt Date
White - Original Cana	ary - Disposer Retain Pin	k - Transporter Reta	in Gol	denrod - Gene	erator Retain

Canary - Disposer Retain Pink - Transporter Retain Goldenrod - Generator Retain 04997

中島 27, 95 1gg: 35名が 642所行止111/1 HW4359 --Laredo, TX



39321

NON-HAZARDOUS MANIFEST

Registration of GINE	RATOR	i ki ili garan kara		
Generator U.S. Army Cosp of Engineers	i in a	CESQ	S	and the second
Address 1645 South 101 FOST AVENUE				irport
Tulsa, OK 74128-4629	Address Loi		× 78	7401
Phone 918-1019-7519	Phone			
Description of Waste Materials	Profile Number	Total . Quantity	Unit of Measure	Container Type
Nonhorordous soil outtings	secollarie nunivirus	6		DM
J	·			
I hereby certify that the above-described materials a				
Part 261 or any applicable state law, have been fully and are in proper condition for transportation according				packaged,
and are in proper condition for transportation accord	ing to applicable	regulations.	,	
J. Come / Arriage	(()	1 de		
Generator Authorized Agent Name (Print)	Signature		Del	ivery Date
TRANS	PORTER			2 Z
Transporter Name SETE Overopmental Sivs.	Driver Name	Jame	s Zez.	ula
Address 11405 CONON LONG	Truck Number	_ 30	2	
Monopaca TC 78652	Truck Type _		1701	2
I hereby acknowledge receipt of the above described	I hereby acknowledge	owledge tha	t the above	described
materials for transport from the generator site listed above.	materials were r		-	
above.	transported with below.	iout inclaent	to the destir	ration instea
James 3424 06-29-77				ý
Driver Signature Shipment Date	Driver Signatur	•	Deliver	v Date
DESTIN			.5021102	
Site Name City of Laredo Landfill		lasi	1705-	2<15
A Comment of the Comm	Phone Num		21/30	_نان
Address HWY 359 Laredo TX	78401	44. · 4 *		
Disposal Location: North A East		Level		
I hereby acknowledge receipt of the above described	materials.			
	1	1000	, , ,	
Name of Authorized Agent (Print)	Signature		G/6	14/99 int Date
	218tremic		Kece)	pi Date
White - Original Canary - Disposer Retain Pini	· Transporter Retai	n Gold	denrod - Gene	rator Retain

Goldenrod - Generator Retain 04998



Central TX Region

8101 Cameron Rd #306 - Austin, TX 78754

512/821-0045 FAX 512/821-0237

Report Date: 06/11/1999

Page 1 of 20

Project Report: 102380

Client: EET1

EET, Inc PO Box 1890

Manchaca, TX 78652-1890 Attention: A. Harasimowitz

Results for Project 102380

109349 Purge/Decon	Water Forme	er Laredo AFE	3 Liqu	iid Aqueous Taken: 05/20/	1999 By: Client	: Rec:05	5/26/1999
'aram eter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
lash Point (Reg. Limit 140.0 F)	>200	Degrees F		EPA Method 1010	05/28/1999 1515	PRE	
'otal Petroleum Hydrocarbon	39	mg/L	1	EPA Method 418.1	06/09/1999 1730	GDG	
*CLP Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6010B	06/08/1999 1139	WOB	7440-22-4
*CLP Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
*CLP Barium (Reg. Limit 100.0)	0.242	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
'CLP Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
CLP Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
CLP Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
CLP Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
eactivity Cyanide (RL 250)	ND	mg/kg	4.0	EPA Method 7.3.3	05/28/1999 1500	RSV	
CLP Marriry (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/02/1999 1412		7439-97-6
Ct a-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	58-89-9
CLP Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0546	KLB	57-74-9
CLP Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-20-8
CLP Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	76-44-8
CLP Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	1024-57-3
CLP Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-43-5
CLP Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0546	KLB	8001-35-2
CLP 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1642	KLB	94-75-7
CLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1642	KLB	93-72-1
CLP 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	107-06-2
CLP 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	75-34-3
CLP Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	71-43-2
CLP Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	56-23-5
	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	108-90-7
CLP Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	67-66-3
CLP MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0010	KLB	78-93-3
CLP Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	127-18-4
CLP Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	79-01-6
LP Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0010	KLB	75-01-4
LP 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	106-46-7
LP 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	121-14-2
_P Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	67-72-1
LP Hexachlorobenzene (.13)	ND	mg/L	0.1 -	EPA Method 8270C	06/04/1999 1519	KLB	118-74-1
LP '/ Norobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	87-68-3
L. azene (Limit 2)	ND	mġ/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	98-95-3
LP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1519	KLB	87-86-5









8101 Cameron Rd #306 -- Austin, TX 78754

512/821-0045 FAX 512/821-0237

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Project Report:

102380

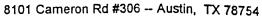
Client: EET1

Results for Project 102380

3349 Purge/Deco	n Water Form	ner Laredo Al	FB	Liquid Aqueous Taken: 05/20	0/1999 By: Clie	nt Rec:(05/26/1999
ameter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
.P Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	110-86-1
.P Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	1319-77-3
.P 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	88-06-2
.P 2,4,5-Trichlorophenol (400) ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519) KLB	95-95-4
oratory pH	7.4	su		EPA Method 9040A	05/28/1999 1630	PRE	
ctivity Sulfide (RL 500)	ND	mg/kg	10	SW-846 7.3.4	05/28/1999 1000	RSV	
350 Soil Cutting	s Former Lar	edo AFB		Solid Taken: 05/20/1999	By: Client Re	c:05/26/1999	
ımeter	Result	Unit .	MAL	Method	Analyzed	Ву	CAS
I Petroleum Hydrocarbon	58	mg/kg	10	EPA Method 418.1	06/03/1999 1130) GDG	
P Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300) WOB	7440-38-2
P Barium (Reg. Limit 100.0)	0.264	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
P Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
P Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
P Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
P Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
P Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-22-4
P Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/01/1999 1431	WOB	7439-97-6
P Gamma-BHC (Lindane) RL	. ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	58-89-9
³ Chlordane (Reg. Limit 0.03) ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0449	KLB	57-74-9
□ Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-20-8
² Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	76-44-8
³ Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	1024-57-3
³ Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-43-5
³ Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0449	KLB	8001-35-2
² 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1716	KLB	94-75-7
² 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1716	KLB	93-72-1
³ 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	107-06-2
³ 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	75-34-3
3 Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	71-43-2
³ Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	56-23-5
³ Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	108-90-7
³ Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	67-66-3
³ MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0105	KLB	78-93-3
³ Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	127-18-4
7 Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	79-01-6
³ Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0105	KLB	75-01-4
¹ 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	106-46-7
³ 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	121-14-2
³ Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	67-72-1









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Project Report: 102380

Client: EET1

Results for Project 102380

09350 Soil Cuttings	Former Lar	edo AFB	s	olid Taken: 05/20/1999	By: Client Re	c:05/26/1999	
arameter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	118-74-1
CLP Hexachlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	87-6 8-3
CLP Nitrobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1641	KLB	87-86-5
CLP Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	110-86-1
CLP Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	1319-77-3
CLP 2.4.6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	88-06-2
CLP 2,4,5-Trichlorophenol (400)		mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	95-95-4

Sample Preparation Steps for Project 102380

9349 Purge/Decor	n Water Form	er Laredo AFB	Liquid Aqueous Taken: 05/2	20/1999 By: Clier	
nrameter	Result	Unit	Method	Analyzed	Ву
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	3 AAJ
L Jatile Extraction	1.5% SOLID		EPA Method 1311	05/28/1999 1540) GPJ
CLP Exception: Non-Volatile	AQU/SOL EXT		EPA Method 1311	05/27/1999 1705	GPJ
etals Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830) PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
drocarbon Liquid Extraction	100/380	mL/mL	EPA Method 3510 *MC	DD 06/03/1999 1450) MAM
stals Digestion - TCLP 7470	150/10 A/S	mL /mL	EPA Method 7470A	06/01/1999 0900	WBM
tals Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/02/1999 0900	WBM
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0546	KLB
trification of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1642	KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0010) KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1519	KLB
x This Report AS Soon As	FAXED		FAX	06/10/1999 16:2	9 KEK
activity Distillation	100/10 A/B	mL/g	SW 846 7.3.3	05/26/1999 1700) HAM
9350 Soil Cuttings	s Former Lar	edo AFB	Solid Taken: 05/20/1999	By: Client Re	c:05/26/1999
rameter	Result	Unit	Method	Analyzed	Ву
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	3 AAJ
LP ZHE Volatile Extraction	100,0% SOLID		EPA Method 1311	05/28/1999 1540) GPJ
LP Extraction: Non-Volatile	SOL EXT #1		EPA Method 1311	05/27/1999 1709	5 GPJ
ats Digestion TCLP 3010	50/10 A/S/S	ml/ml	EPA Method 3010A	06/02/1999 0830	PJD
_P Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
LP Liquid-Liquid Extraction	1/100 S	m L/mL	EPA Method 3510	06/03/1999 070	LMB
Sonication Extract.	100/30	m L/g	EPA Method 3550B	06/02/1999 1130	LMB
als Jon - TCLP 7470	150/10 A/S/S	m l/ml	EPA Method 7470A	06/01/1999 0900) WBM







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Project Report: 102380

Client: EET1

Sample Preparation Steps for Project 102380

1350 Soil Cutting:	s Former L	aredo AFB	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
ameter	Result	Unit	Method	Analyzed	Ву
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999	0449 KLB
ification of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999	0900 LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999	1716 KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999	0105 KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999	1641 KLB
This Report AS Soon As	FAXED		FAX	06/07/1999	16:53 KEK

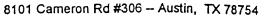
Sample Specific Quality Control/Quality Assurance

Method 8260B Surrogate/Spike on Sample 409349 06/02/1999 2
Result Concertation Recovery Recover
romofluoromethane 42.1 40.0 110 rene-d8 40.9 40.0 100 Method 8260B Matrix Spike on Sample 409349 06/02/1999 2 round Recovery (*) Concentration Penzene (Reg. Limit 0.5) 110 50.0 Carbon Tetrachloride (.5) 122 50.0 Chlorobenzene (Limit 100) 111 50.0 Chloroform (Reg. Limit 6.0) 112 50.0 1,2-Dichloroethane (RL .5) 121 50.0 1,1-Dichloroethane (RL .5) 121 50.0 Titrachloroethylene (.7) 106 50.0 Tetrachloroethylene (.7) 111 50.0 Trichloroethylene (.5) 115 50.0 Vinyl Chloride (.4) 96.0 50.0 MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 round IS Area CCC IS Area Status
Method 8260B Matrix Spike on Sample 409349 06/02/1999 2
Method 8260B Matrix Spike on Sample 409349 06/02/1999 2 Dound Recovery (*) Concentration P Benzene (Reg. Limit 0.5) 110 50.0 P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
Method 8260B Matrix Spike on Sample 409349 06/02/1999 2 Dound Recovery (%) Concentration P Benzene (Reg. Limit 0.5) 110 50.0 P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
Dound Recovery (%) Concentration P Benzene (Reg. Limit 0.5) 110 50.0 P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
P Benzene (Reg. Limit 0.5) 110 50.0 P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
P Carbon Tetrachloride (.5) 122 50.0 P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
P Chlorobenzene (Limit 100) 111 50.0 P Chloroform (Reg. Limit 6.0) 112 50.0 P 1,2-Dichloroethane (RL .5) 121 50.0 P 1,1-Dichloroethene (.7) 106 50.0 P Tetrachloroethylene (.7) 111 50.0 P Trichloroethylene (.5) 115 50.0 P Vinyl Chloride (.4) 96.0 50.0 P MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
P Chloroform (Reg. Limit 6.0) 112 50.0 1,2-Dichloroethane (RL .5) 121 50.0 1,1-Dichloroethene (.7) 106 50.0 Tetrachloroethylene (.7) 111 50.0 Trichloroethylene (.5) 115 50.0 Vinyl Chloride (.4) 96.0 50.0 MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
2 1,2-Dichloroethane (RL .5) 121 50.0 2 1,1-Dichloroethene (.7) 106 50.0 2 Tetrachloroethylene (.7) 111 50.0 3 Trichloroethylene (.5) 115 50.0 3 Vinyl Chloride (.4) 96.0 50.0 3 MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 3 Sound IS Area CCC IS Area Status
? 1,1-Dichloroethene (.7)
P Tetrachloroethylene (.7)
Prichloroethylene (.5) 115 50.0 Vinyl Chloride (.4) 96.0 50.0 MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 Dound IS Area CCC IS Area Status
<pre> ? Vinyl Chloride (.4) 96.0 50.0 ? MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 pound</pre>
MEK (Reg. Limit 200) 85.8 50.0 Method 8260B Internal Standard Areas on Sample 409349 06/02/1999 2 pound IS Area CCC IS Area Status
oound IS Area CCC IS Area Status
oound IS Area CCC IS Area Status
tafluorobenzene-ISTD 168800 174400
-Difluorobenzene-ISTD 244800 252800
cobenzene-d5-ISTD 204300 214400
-Dichlorobenzene-d4-ISTD 91360 96680
Method 8270C Surrogate/Spike on Sample 409349 06/04/1999 1
cound Result Concentration *Recovery
,6-Tribromophenol 91.4 100 91
luorophenol-SURR 50.4 100 50
no1-d6-SURR 34.1 100 34
cobenzene-d5-SURR 35.1 50.0 70
luorobiphenyl-surR 35.7 50.0 71





MPLETE SERVICE LAB





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Project Report: 102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

409349 Purge/Decon Water	Former Lare	do AFB	Liquid Aqueous Taken: 05/2	20/1999 By:	Client Rec:05/26/1999
409349 Purge/Decon Water 1-Terphenyl-d14-SURR	57.2	50.0	110		
4-lerphenyr-dr4-book					
EPA Method 8260B Matrix Spike	on Sample 40	9349 06/04/	1999 1		
Compound	Recovery (%		ration		
CLP Bis(2-chloroethyl) ether	84.5	100			
CLP 1,4-Dichlorobenzene	68.4	100			
CLP 2,4-Dinitrotoluene (.13)	83.7	100			
CLP Hexachlorobenzene (.13)	88.8	100			
CLP Hexachlorobutadiene (.5)	71.6	100			
CLP Hexachlorethane (Limit 3)	73.2	100			
CLP Nitrobenzene (Limit 2)	86.4	100			
CLP Pentachlorophenol (100)	63.7	100			
CLP 2,4,6-Trichlorophenol (2)	69.7	100			
CLP 2,4,5-Trichlorophenol (400	71.0	100			
'CLP Total Cresols (Reg Lim 200		300			
CI dine (Reg. Limit 5)	68.1	100			
:PA Method 8270C Internal Sta	ndard Areas o	n Sample 40934	9 06/04/1999 1		
	S Area	CCC IS Area			
.4-Dichlorobenzene-d4-ISTD	232000	238300			
aphthalene-d8-ISTD	885700	880200			
cenaphthene-d10-ISTD	478400	473900			
henanthrene-d10-ISTD	682300	683700			
hrysene-d12-ISTD	371300	447900			
erylene-d12-ISTD	277400	331000			
GC Surr.) Surrogate/Spike on	Sample 40934	9 06/02/199	9 1		
ompound	Result	Concentration	<pre>%Recovery</pre>		
,4-Dichlorophenylacetic Acid	122	100	120		
, 4 · Dieniolophon, 1 · · · ·					
GC Surr.) Matrix Spike on Sam	mple 409349	06/02/1999	1		
ompound	Recovery (%) Concent	ration		
,4,5-TP (Silvex)	102	100			
,4 Dichlorophenoxyacetic acid	119	100			
	409349 06/	02/1999 1			
	Result	Concentration	*Recovery		
<pre>ompound ibutylchlorendate (GC Surr)</pre>	56.2	100	56		
etrachloro-m-Xylene (GC Surr.)	54.8	100	55		
ectachioto-maxyrene (50 out)					
C Matrix Spike on Sample 409.	349 06/02/	1999 1			
ompound	Recovery (%) Concent	ration		
am (Lindane)	67.2	100			



ptachlor



61.9



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Project Report: 102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

3349 Purge/Decon Water	Former Lare	do AFB	Liquid Aqueous Taken: 05	/20/1999 B	y: Client Rec:05/26/1999
tachlor epoxide	72.9	100			
hoxychlor	75.0	100			
350 Soil Cuttings Forme	r Laredo AEF	2	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
_	ike on Sample		2/1999 2	by. Cherk	Rec.03/26/1999
	Result	Concentration	%Recovery		
<pre>pound romofluoromethane</pre>	42.6	40.0	110		
	41.0	40.0	100		
uene-d8	42.4	40.0			
mofluorobenzene-SURR	42.4	40.0	110		
Method 8260B Matrix Spike	on Sample 40	9350 06/02/1	999 2		
pound	Recovery (%) Concentra	ation		
P Benzene (Reg. Limit 0.5)	112	50.0			
P Carbon Tetrachloride (.5)	123	50.0			
P Chlorobenzene (Limit 100)	113	50.0			
P Chloroform (Reg. Limit 6.0)	116	50.0			
P 1.2-Dichloroethane (RL .5)	124	50.0			
P 1,1-Dichloroethene (.7)	110	50.0			
P Tetrachloroethylene (.7)	109	50.0			
? Trichloroethylene (.5)	113	50.0			
P Vinyl Chloride (.4)	97.8	50.0			
? MEK (Reg. Limit 200)	94.8	50.0			
Method 8260B Internal Stan	dard Areas on	Sample 409350	06/02/1999 2		
pound IS	Area	CCC IS Area	Status		
:afluorobenzene-ISTD	166500	174400			
-Difluorobenzene-ISTD	239000	252800			
robenzene-d5-ISTD	203600	214400			
-Dichlorobenzene-d4-ISTD	89460	96680	•		
Method 8270C Surrogate/Spi	ke on Sample	409350 06/04	/1999 1		
ound	Result	Concentration	<pre>%Recovery</pre>		
6-Tribromophenol	80.8	100	81		
.uorophenol-SURR	49.7	100	50		
iol-d6-SURR	33.4	100	33		
obenzene-d5-SURR	33.3	50.0	67		
.uorobiphenyl-SURR	31.5	50.0	63		
erphenyl-d14-SURR	57.9	50.0	120		
Method 8260B Matrix Spike		350 06/04/19	99 1		
ound	Recovery (%)	Concentra	tion		
'Bis(2-chloroethyl) ether	82.5	100		•	





100

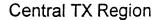
100

Bis(2-chloroethyl) ether1,4-Dichlorobenzene

2,4-Dinitrotoluene (.13)

60.2

81.7





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Project Report:

102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

409350 Soil Cuttings Forme	er Laredo AF	В	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
TCLP Hexachlorobenzene (.13)	88.1	100			
TCLP Hexachlorobutadiene (.5)	59.1	100			
TCLP Hexachlorethane (Limit 3)	64.2	100			
TCLP Nitrobenzene (Limit 2)	83.8	100			
TCLP Pentachlorophenol (100)	63.4	100	•		
TCLP 2,4,6-Trichlorophenol (2)	67.5	100			
TCLP 2,4,5-Trichlorophenol (400) 69.8	100			
TCLP Total Cresols (Reg Lim 200) 62.0	300			
TCLP Pyridine (Reg. Limit 5)	50.0	100			
EPA Method 8270C Internal Sta	ndard Areas	on Sample 409350	06/04/1999 1		
Compound	S Area	CCC IS Area	Status		
1,4-Dichlorobenzene-d4-ISTD	235900	238300			
Naphthalene-d8-ISTD	903500	880200			
Acenaphthene-d10-ISTD	473200	473900			
Phr Trene-d10-ISTD	666200	683700			
chid12-ISTD	352300	447900			
Perylene-d12-ISTD	261200	331000			
(GC Surr.) Surrogate/Spike on	Sample 40935	06/02/1999	1		
Compound	Result	Concentration	%Recovery		
?,4-Dichlorophenylacetic Acid	117	100	120		
GC Surr.) Matrix Spike on Sam	ple 409350	06/02/1999	1		
:ompound	Recovery (() Concentr	ation		
:,4,5-TP (Silvex)	94.4	100			
,4 Dichlorophenoxyacetic acid	109	100			
C Surrogate/Spike on Sample 4	09350 06/	02/1999 1			
ompound	Result	Concentration	<pre>%Recovery</pre>		
ibutylchlorendate (GC Surr)	81.2	100	81		
etrachloro-m-Xylene (GC Surr.)	81.3	100	81		
C Matrix Spike on Sample 4093	50 06/02/	1999 1			
⇒ mpound	Recovery (%) Concentra	ation		
<pre>imma-BHC (Lindane)</pre>	97.5	100			
drin	125	100			
*ptachlor	93.1	100			
ptachlor epoxide	100	100			
thoxychlor	138	100			







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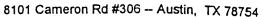
Project Report: 102380

Client:

. Method 8260B Blank	06/02/1999	2		
pound	Result			
zene	ИD			
orobenzene	ИD			
-Dichloroethylene	ND			
hylene Chloride	ND			
uene	ИD			
chloroethylene	ИD			
Method 8260B Instrumen	t Tune 06/	02/1999 2		
s Reference M	ass Min Abun	dance Max Abundai	nce Result	Status
Mass 50 95	15.0	40.0	20.2	PASS
Mass 75 95	30.0	60.0	47.8	PASS
Mass 95 95	100	100	100.0	PASS
Mass 96 95	5.00	9.00	6.3	PASS
Mass 173 174	0	2.00	0.0	PASS
Mass 174 95	50.0	100	70.9	PASS
Mass 175 174	5.00	9.00	8.6	PASS
Mass 176 174	95.0	101	97.9	PASS
Mass 177 176	5.00	9.00	6.6	PASS
Instrument Calibration Che	eck 06/02/1	.999 2		
oound	Max %Rel. St	d. %Deviation	Statu	ıs
oroform	20.0	-9.8	PASS	
-Dichloroethylene	20.0	-4.7	PASS	
-Dichloropropane	20.0	-9.5	PASS	
/l benzene	20.0	-12.5	PASS	
iene	20.0	-7.5	PASS	
/l Chloride	20.0	9.8	PASS	
Method 8260B Instrument	. System Perfo	rmance Check 0	6/02/1999	2
⇒ound Min Re	sponse Factor	Response Fact	or Statu	s
noform	.1010	0.279	PASS	
∍robenzene	.3000	1.217	PASS	
romethane (Methyl Chloric		0.555	PASS	
-Dichloroethane	.1000	1.105	PASS	
2,2-Tetrachloroethane	. 3000	1.596	PASS	
Method 8260B Matrix Spik	e/Duplicate o	n Sample 409602	06/02/199	
ound Fi	rst (%)	Second (%)	<pre>%Differe</pre>	nce
ene	109	111	1.8	
robenzene	113	115	1.8	
Dichloroethylene	107	109	1.9	
iene	110	112	1.8	
shloroethylene	110	113	2.7	









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Project Report: 102380

Client:

Organic Quality Control/Quality Assurance for Project 102380

IPA Method	9270C	Instrument Tu	ine 06/04/1999	9	1		
1 a ss		Reference Mass	Min Abundance	Max	Abundance	Result	Status
OFTPP Mass	51	198	30.0		60.0	59.1	PASS
OFTPP Mass	68	69	0		2.00	0.0	PASS
OFTPP Mass	69	198	0		100	62.8	PASS
OFTPP Mass	70	69	О		2.00	0.0	PASS
OFTPP Mass	127	198	40.0		60.0	51.2	PASS
FTPP Mass	197	198	0		1.00	0.0	PASS
)FTPP Mass	198	198	100		100	100.0	PASS
PTPP Mass	199	198	5.00		9.00	6.9	PASS
FTPP Mass	275	198	10.0		30.0	21.3	PASS
FTPP Mass	365	198	1.00		100	2.9	PASS
FTPP Mass	441	443	0		100	81.5	PASS
FTPP Mass	442	198	40.0		100	59.7	PASS
FTPP Mass	443	442	17.0	:	23.0	19.2	PASS

Instrument Calibration Check	06/04/1999	1	
om Ma	x %Rel. Std.	<pre>%Deviation</pre>	Status
ice is ane	30.0	-4.2	PASS
enzo(a)pyrene	30.0	-3.0	PASS
-Chloro-3-methylphenol	30.0	-8.0	PASS
,4-Dichlorobenzene	30.0	-2.7	PASS
,4-Dichlorophenol	30.0	-3. 9	PASS
i-n-octylphthalate	30.0	-17.0	PASS
luoranthene	30.0	3.6	PASS
<pre>exachlorobutadiene</pre>	30.0	-21.0	PASS
-Nitrophenol	30.0	-0.8	PASS
-Nitrosodiphenylamine (as DPA)	30.0	-7.7	PASS
entachlorophenol	30.0	0.2	PASS
henol	30.0	0.4	PASS
,4,6-Trichlorophenol	30.0	-2.4	PASS

trument	Syster	n Performai	nce Check	06/04/1	1999 :	1
Min Re	sponse	Factor	Response	Factor	Status	
	. 05	500	0.11	. 4	PASS	
ene	. 05	500	0.26	59	PASS	
	. 05	500	0.28	32	PASS	
ine	. 05	500	0.90	7	PASS	
	Min Re ene	Min Response .09 ene .09	Min Response Factor .0500 ene .0500 .0500	.0500 0.11 ene .0500 0.26 .0500 0.28	Min Response Factor Response Factor	Min Response Factor Response Factor Status .0500 0.114 PASS ene .0500 0.269 PASS .0500 0.282 PASS

A Method 8151A Blank 06/02/1999

Result mpound

ND 4,5-TP (Silvex)

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4 Dichlorophenoxyacetic acid

8151A Standard 06/02/1999

Concentration Result npound

*Difference









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Client:

Organic Quality Control/Quality Assurance for Project 102380

1,5-TP (Silvex)	150	157	4.7
# Dichlorophenoxyacetic acid	150	147	-2.0
A Method 8081A Blank 06/0	2/1999 1		
npound	Result		
irin	ND		
<pre>pha-BHC(hexachlorocyclohexane)</pre>	ND		
:a-BHC(hexachlorocyclohexane)	ND		
.ta-BHC(hexachlorocyclohexane)	ND		
wma-BHC (Lindane)	ND		
ordane	ND		
DDD	ND		
-DDE	ND		
-DDT	ND		
·ldrin	ND		
osulfan I (alpha)	ND		
osulfan II (beta)	ND		
osulfan sulfate	ND		
rin	ND		
rin aldehyde	ND		
tachlor	ND		
tachlor epoxide	ND		
aphene	ND		
noxychlor	ND		
Method 8081A Standard 06	/02/1999	1	

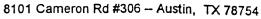
Method 8081A Standard 0	6/02/1999	1	
concent Concent	ration	Result	<pre>%Difference</pre>
rin	100	98.5	-1.5
na-BHC(hexachlorocyclohexane)	100	99.6	-0.40
<pre>1-BHC(hexachlorocyclohexane)</pre>	100	91.1	-8.9
<pre>ta-BHC(hexachlorocyclohexane)</pre>	100	99.4	-0.60
na-BHC (Lindane)	100	97.5	-2.5
-DDD	100	97.1	-2.9
-DDE	100	99.6	-0.40
-DDT	100	96.7	-3.3
Edrin	100	99.7	-0.30
sulfan I (alpha)	100	98.6	-1.4
sulfan II (beta)	100	95.9	-4.1
sulfan sulfate	100	96.5	-3.5
rin .	100	99.3	-0.70
in aldehyde	100	94.4	-5.6
lachlor	100	98.2	-1.8
achlor epoxide	100	98.7	-1.3
noxychlor	100	91.5	-8.5

05008

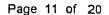




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Project Report: 102380

Client:

	Flash Point (Reg.	Limit 14	0.0 F)	(Ar	nalyzed: 05/28/1999 1515 I	PRE Verified: 06/02/1999 09:03 NO	GT)
Sample	Туре		Result	Value	Unit	Percent	
•	Stand	dard	84	80	Degrees F	5.0	
409123	Dupli	icate	13 2	129	Degrees F	1.5	
	TCLP Silver (Reg	. Limit 5.0	0)	(Ar	nalyzed: 06/08/1999 1139 \	WOB Verified: 06/08/1999 12:17 W	/JP)
Sample	Туре		Result	Value	Unit	Percent	
•	Stand	dard	1.91	2.00	ppm	-4.5	
	Stand	dard	0.962	1.00	ppm	-3.8	
	Stand	dard	0.946	1.00	ppm	-5.4	
409349	Direc	t SPK		101	ppm	101	
409349	Direc	t SPK		98	ppm	98	
	TCLP Silver (Reg	. Limit 5.0))	(An	nalyzed: 06/02/1999 1300 \	WOB Verified: 06/03/1999 14:50 S	AH)
Sample .	Туре	•	Result	Value	Unit	Percent	
	Stand	dard	0.0993	0.100	ppm	-0.7	
L	Stand	dard	0.310	0.300	ppm	3.3	
•	Stand	dard	0.308	0.300	ppm	2.7	
	Stand	dard	0.304	0.300	ppm	1.3	
	Stand	dard	0.301	0.300	ppm	0.3	
	Stand	dard	0.306	0.300	ppm	2.0	
	Stand	dard	0.297	0.300	ppm	-1.0	
	Stand	dard	0.300	0.300	ppm	0.0	
	Stand	iard	0.102	0.100	ppm ·	2.0	
	Stand	lard ·	0.321	0.300	ppm	7.0	
	Stand	lard	0.321	0.300	ppm	7.0	
	Stand	lard	0.319	0.300	ppm	6.3	
	Stand	lard	0.319	0.300	ppm	6.3	
	Stand	lard	0.318	0.300	ppm	6.0	
	Stand	lard	0.321	0.300	ppm	7.0	
	LCS	+	0.0616	0.100	ppm	-38.4	
	LCS		0.0155	0.0200	ppm	-22.5	
	LCS	(0.0150	0.0200	ppm	-25.0	
	Blank	,	<0.0100		ppm		
	Blank		<0.0500		ppm		
	Blank		<0.0500		ppm		
093 16	Spike			0.100	ppm	71	
09333	Spike			0.100	ppm	66	
79334	Spike			0.100	ppm	64	
19 33 5	Spike			0.100	ppm	66	
)or ,	Spike			0.100	ppm	67	
<u>,</u>).	Spike			0.100	ppm	67	05000
79350	Spike			0.100	ppm	67	05009







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Client:

	TCLP Silver (Reg. Limi	t 5.0)		(Analyzed: 06/02/19	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
ıple	Туре	Result	Value	Unit	Percent
350	Spike		0.100	ppm	61
374	Spike		0.0200	ppm	64
374	Spike		0.0200	ppm	62
375	Spike		0.100	ppm	61
376	Spike		0.100	ppm	62
377	Spike		0.100	ppm	63
378	Spike		0.100	ppm	63
420	Spike		0.100	ppm	46
122	Spike		0.100	ppm	57
561	Spike		0.100	ppm	59
	TCLP Arsenic (Reg. Lin	nit 5.0)		(Analyzed: 06/02/19	99 1300 WOB Verified: 06/03/1999 14:50 SAH)
ıple	Type	Result	Value	Unit	Percent
,,,,,,	Standard	0.0995	0.100	ppm	-0.5
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.295	0.300	ppm	-1.7
	Standard	0.321	0.300	ppm	7.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.316	0.300	ppm	5.3
	Standard	0.317	0.300	ppm	5.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.315	0.300	ppm	5.0
	LCS	0.482	0.500	ppm	-3.6
	LCS	0.0941	0.100	ppm	-5.9
	Blank	<0.100		ppm	>
	Blank	<0.500		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	100
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	99
349	Spike		0.500	ppm	99
350	Spike		0.500	ppm	99
350	Spike		0.500	ppm	95
374	Spike		0.100	ppm	91
374	Spik e		0.100	ppm	88









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Client:

	TCLP Arsenic (Reg. Lin	nit 5.0)		(Analyzed: 06/02/1	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sam ple	Туре	Result	Value	Unit	Percent	
093 75	Spike		0.500	ppm	102	
:093 76	Spike		0.500	ppm	102	
09377	Spike		0.500	ppm	101	
093 78	Spike		0.500	ppm	103	
	TCLP Barium (Reg. Lim	it 100.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
:am ple	Туре	Result	Value	Unit	Percent	
	Standard	0.0993	0.100	ppm	-0.7	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.310	0.300	ppm	3.3	
	Standard	0.304	0.300	ppm	1.3	
	Standard	0.296	0.300	ppm	-1.3	
	Standard	0.312	0.300	ppm	4.0	
	Standard	0.304	0.300	ppm	1.3	
	Standard	0.311	0.300	ppm	3.7	
•	Standard	0.103	0.100	ppm	3.0	
	Standard	0.320	0.300	ppm	6.7	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.315	0.300	ppm	5.0	
	Standard	0.318	0.300	ppm	6.0	
	LCS	0.433	0.500	ppm	-13.4	
	LCS	0.106	0.100	ppm	6.0	
	LCS	0.105	0.100	ppm	5.0	
	Blank	<0.0100		ppm		
	Blank	<0.0500		ppm		
	Blank	0.086		ppm		
19316	Spíke		0.500	ppm	101	
9333	Spike		0.500	ppm	94	
19334	Spike		0.500	ppm	97	
1 93 35	Spike		0.500	ppm	96	
9349	Spike		0.500	ppm	95	
334 9	Spike		0.500	ppm	96	
9350	Spike		0.500	ppm	97	
93 50	Spike		0.500	ppm	92	
3374	Spike		0.100	ppm	80	
3374	Spike		0.100	ppm	58	
93* 📝	Spike		0.500	ppm	95	
93 .	Spike		0.500	ppm	95	N 1 1
					050	011







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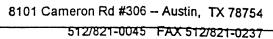
Client:

	TCLP Barium (Reg. Lin	nit 100.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)
прів	Туре	Result	Value	Unit	Percent
3377	Spike		0.500	ppm	95
378	Spike		0.500	ppm	96
1420	Spike		0.500	ppm	98
1422	Spike		0.500	ppm	96
561	Spike		0.500	ppm	99
	TCLP Cadmium (Reg. L	imit 1 (1)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
	Type	Result	Value	Unit	Percent
nple	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spike		0.250	ppm	96
334	Spike		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spike		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95





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Client:

	TCLP Cadmium (Reg. L	_imit 1.0)		(Analyzed: 06/02/	(1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sample	Туре	Result	Valu e	Unit	Percent	
4093 76	Spike		0.250	ppm	80	
409377	Spike		0.250	ppm	94	
4093 78	Spike		0.250	ppm	96	
4094 20	Spike		0.250	ppm	93	
409 422	Spike		0 .250	ppm	95	
409561	Spike		0 .250	ppm	97	
	TCLP Chromium (Reg.	Limit 5.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sample	Туре	Result	Value	Unit	Percent	
oup.	Standard	0.0998	0.100	ppm	-0.2	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.310	0.300	ppm	3.3	
	Standard	0.300	0.300	.ppm	0.0	
	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.314	0.300	ppm	4.7	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.318	0.300	ppm	6.0	
	LCS	0.485	0.500	ppm	-3.0	
	LCS	0.0980	0.100	ppm	-2.0	
	Blank	<0.0200		ppm		
	Blank	<0.100		ppm		
0 9316	Spike		0.500	ppm	103	
09333	Spike		0.500	ppm	98	
093 34	Spike		0.500	ppm	98	
393 35	Spike		0.500	ppm	102	
093 49	Spike		0.500	ppm	98	
0934 9	Spike		0.500	ppm	98	
0935 0	Spike		0.500	ppm	98	
9350	Spike		0.500	ppm	92	
9374	Spike		0.100	ppm	100	
9374	Spike		0,100	ppm	86	
937 5	Spike		0.500	ppm	103	
∋937 6	Spike		0.500	ppm	98	
091	Spike		0.500	ppm	97	
19 . -	Spike		0.500	ppm	100 050	13
_						-







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Client:

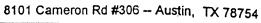
TCLP	Mercury (Reg. L	imit 0.2)		(Analyzed: 06/02/1	999 1412 WOB Verified: 06/03/1999 12:14 NGT)
•	Туре	Result	Value	Unit	Percent
	Standard	23.7	25.0	ppb	-5.2
	Standard	4.87	5.00	ppb	-2.6
	Standard	4.80	5.00	ppb	-4.0
	Standard	4.83	5.00	ppb	-3.4
	Standard	4.75	5.00	ppb	-5.0
	LCS	9.05	10.0	ppb	-9.5
	LCS	10.5	10.0	ppb	5.0
	Blank	<0.10		ppb	
	Blank	<0.15		ppb	
	Spike		10.0	ppb	97
	Spike		10.0	ppb	101
	Spike		10.0	ppb	93
	Spike		10.0	ppb	94
	Spike		10.0	ppb	100
	Spike		10.0	ppb	.91
	Spike		10.0	ppb	76
	Spike		10.0	ррь	80
	Standard	24.7	25.0	ppb	-1.2
	Standard	5.13	5.00	ppb	2.6
	Standard	5.28	5.00	ppb	5.6
	Standard	5.23	5.00	ppb	4.6
	Standard	5.08	5.00	ppb	1.6
	LCS	9.38	10.0	ppb	-6.2
	Blank	<0.15		ppb	
	Spike		10.0	ppb	96
	Spike		10.0	ppb	100
	Spike		10.0	ppb	102
	Spike		10.0	ppb	101
	Spike		10.0	ppb	52
	Spike		10.0	ppb	95
	Spike		10.0	ppb	95
	Spike		10.0	ppb	93
	Spike		10.0	ppb	102
	Spike		10.0	ppb	97
TCLP	Lead (Reg. Limit	5.0)		(Analyzed: 06/02/19	99 1300 WOB Verified: 06/03/1999 14:50 SAH)
,	Туре	Result	Value	Unit	Percent
	Standard	0.0986	0.100	ppm	-1.4
	Standard	0.310	0.300	ppm	3.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.304	0.300	ppm	1.3





ETE SERVICE LAB





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Client:

	TCLP Lead (Reg. Limit	5.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH	1)
Sample	Туре	Result	Value	Unit	Percent	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.315	0.300	ppm	5.0	
	Standard	0.103	0.100	ppm	3.0	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.323	0.300	ppm	7.7	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.323	0.300	ppm	7.7	
	LCS	0.449	0.500	ppm	-10.2	
	LCS	0.102	0.100	ppm	2.0	
	LCS	0.101	0.100	ppm	1.0	
	Blank	<0.0500		ppm		
	Blank	<0.250		ppm		
	Blank	<0.250		ppm		
093 16	Spike		0.500	ppm	105	
)93 33	Spike `		0.500	ppm	102	
09334	Spike		0.500	ppm	103	
)93 35	Spike		0.500	ppm	105	
)9 349	Spike		0.500	ppm	103	
)9 349	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	99	
)9 374	Spike		0.100	ppm	134	
)9374	Spike		0.100	ppm	84	
9375	Spike		0.500	p pm	106	
9376	Spike		0.500	ppm	102	
9377	Spike		0.500	ppm	103	
9378	Spike		0.500	ppm	103	
9420	Spike		0.500	ppm	104	
9422	Spike		0.500	ppm	102	
9561	Spike		0.500	ppm	104	
	TCLP Selenium (Reg. L	imit 1.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
mple	Туре	Result	Value	Unit	Percent	
•	Standard	0.0980	0.100	ppm	-2.0	
	Standard	0.302	0.300	ppm	0.7	
£	Standard	0.311	0.300	ppm	3.7	
	Standard	0.303	0.300	ppm	1.0	5015







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Client:

	TCLP Selenium (Reg.	Limit 1.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)
nple	Type	Result	Value	Unit	Percent
•	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
316	Spike		0.500	ppm	102
333	Spike	•	0.500	ppm	98
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
3 49	Spike		0.500	ppm	98
49	Spike		0.500	ppm	100
50	Spike		0.500	ppm	98
50	Spike		0.500	ppm	96
:74	Spike		0.100	ppm	92
74	Spike		0.100	ppm	92
75	Spike		0.500	ppm	102
76	Spike		0.500	ppm	99
77	Spike		0.500	ppm	99
78	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107
	Reactivity Cyanide (RL	250)		(Analyzed: 05/28/19	999 1500 RSV Verified: 06/02/1999 11:28 SAH)
ple	Type	Result	Value	Unit	Percent
μισ	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3





3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

3.1 Common Acronyms and Abbreviations

COC Chain-of-Custody

DoD Department of Defense

DQO Data Quality Objective

FD Field Duplicate

EB Equipment Blank

EM Engineering Manual

EPA Environmental Protection Agency

HTRW Hazardous, Toxic, Radioactive Waste

ICP Inductively Coupled Plasma

IDL Instrument Detection Limit

IWTP Industrial Waste Treatment Plant

LAFB Laredo Air Force Base

LB Laboratory Blank

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MDL Method Detection Limit

MS/MSD Matrix Spike/Matrix Spike Duplicate

QA/QC Quality Assurance/Quality Control

RL Reporting Limit

RPD Relative Percent Difference

SGR Shotgun Range

TB Trip Blank

USACE United States Army Corps of Engineers

3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's \rightarrow J's)
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

4. Chain of Custody Synopsis

	Chemical	Analytical Met	thods					
Sample ID: SGRBHSO-	Matrix	Time	Туре	Lead SW6010	SPLP/Lead SW1312/SW6010			
	Samples Collected on 21 May 1999							
001000N1	SO	0836	N	X	X ¹			
001002N1	SO	0842	N	X				
002000N1	SO	0903	N	X	X ¹			
002002N1	SO	0914	N	X				
003000N1	SO	0934	N	X	anne dan gant de la companya de la companya de la companya de la companya de la companya de la companya de la c			
003002N1	SO	0940	N	X				
004000N1	SO	0958	N	X	X ¹			
004002N1	SO	1004	N	X				
005000N1	SO	1022	N	X	X ¹			
005002N1	SO	1030	N	X	No terrorgene from State (All Parks and All All All All All All All All All Al			
006000N1	SO	1128	N	X				
006000FD1	SO	1128	FD	X	X ¹			
006002N1	SO	1135	N	X	William Committee and the Comm			
006002FD1	so ·	1135	FD	X				
007000N1	SO	1155	N	X	100 Bald Bald Bald Bald Bald Bald Bald Bald			
007002N1	SO	1200	N	X				
008000N1	SO	1358	N	X				
008002N1	SO	1415	N	X				
009000N1	SO	1435	N	X				
009002N1	SO	1500	N	X				
010000N1	so	1515	N	×				
010000FD1	SO	1515	FD	X				
010002N1	so	1522	N	X				
011000N1	SO	1538	N	X				
011002N1	so	1545	N	X				
012000N1	so	1605	N	×				

	Chemical	Analytical N	Methods		
Sample ID: SGRBHSO-	Matrix	Time	Туре	Lead SW6010	SPLP/Lead SW1312/SW6010
012002N1	so	1610	N	X	
SGRBHWQ012000EB1	WQ	1600	EB	X	nn i territorio y 2007 il protono principalisti e un presconne di presconne del 2007 il 1900 del 2007 il 1900 d
	Samples Col	lected on 22	2 May 1999		
013000N1	so	0820	N	Х	
013002N1	so	0830	N	X	941 oo 19 oo ka 1986 da 19 oo dadd 11 da 19 oo dadd 11 da 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 o
014000N1	SO	0845	N	X	WHAT HILLS
014002N1	so	0850	N	X	ik mandi kun kanana ang mandi adalah mandi adalah mandi adalah mandi adalah sa kanana kanana pamana mandi adal Pangan kanana kanana ang mandi adalah mandi adalah mandi adalah sa kanana da kanana kanana pamana mandi adalah
015000N1	so	0922	N	X	
015002N1	so	0930	N	X	
SGRBHWQ01500EB1	WQ	0900	EB	X	ement timinimini timi na naj cajandona mie con e ne jeje
	Samples Coll	ected on 24	June 1999		
016000N1	so	1545	N	X ²	X
017000N1	SO	1615	N	X ²	×
018000N1	SO	1645	N	X ²	X
018000MS1	SO	1645	FD	X ²	X

Notes: X - Southwest Laboratory of Oklahoma

FD - Field Duplicate

EB - Equipment Blank

X¹ - Sample re-logged into the laboratory as SDG 39086.

X² - Sample re-logged into the laboratory as SDG 39390.

5. Sample Cross Reference Tables

5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHSO001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHSO002002N1	N
38707.05	SGRBHSO003000N1	N
38707.06	SGRBHS0003002N1	N
38707.07	SGRBHS0004000N1	N
38707.08	SGRBHS0004002N1	N
38707.09	SGRBHS0005000N1	N
38707.10	SGRBHS0005002N1	N
38707.11	SGRBHS0006000N1	N
38707.12	SGRBHSO006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHS0006002FD1	FD
38707.15	SGRBHS0007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHS0010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	. N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHS0010002N1	N
38708.04	SGRBHS0011000N1	N
38708.05	SGRBHS0011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHS0012000N1	N

Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHS0012002N1	N
38708.09	SGRBHS0013000N1	Ν
38708.10	SGRBHSO013002N1	N
38708.11	SGRBHS0014000N1	N
38708.12	SGRBHS0014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHS0015000N1	N
38708.15	SGRBHS0015002N1	N
39086.01	SGRBHSO002000N1	N
39086.02	SGRBHSO004000N1	N
39086.03	SGRBHSO005000N1	. N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	Ν
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHS0017000N1	N
39177.03	SGRBHSO018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHSO016000N1	N
39390 02	SGRBHSO017000N1	N
39390.03	SGRBHSO018000N1	N
39390.04	SGRBHS0018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHS0001000N1 instead of the requested SGRBHS0009000N1.

5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSO001000N1	38707.01	
SGRBHSO001002N1	38707.02	N
SGRBHSO002000N1	38707.03	N
SGRBHSO002002N1	38707.04	N
SGRBHSO003000N1	38707.05	N
SGRBHSO003002N1	38707.06	N
SGRBHSO004000N1	38707.07	N
SGRBHSO004002N1	38707.08	N
SGRBHSO005000N1	38707.09	N
SGRBHS0005002N1	38707.10	N
SGRBHSO006000N1	38707.11	N
SGRBHSO006000FD1	38707.12	FD
SGRBHSO006002N1	38707.13	N
SGRBHSO006002FD1	38707.14	FD
SGRBHSO007000N1	38707.15	N
SGRBHSO007002N1	38707.16	N
SGRBHSO008000N1	38707.17	N
SGRBHSO008002N1	38707.18	N
SGRBHSO009000N1	38707.19	N
SGRBHSO010000N1	38707.20	N
MS from SGRBHSO010000N1	38707.21	MS
MSD from SGRBHSO010000N1	38707.22	MSD
SGRBHSO009002N1	38708.01	N
SGRBHSO010000FD1	38708.02	FD
SGRBHS0010002N1	38708.03	N
SGRBHSO011000N1	38708.04	N
SGRBHS0011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSO012000N1	38708.07	N
SGRBHSO012002N1	38708.08	N
SGRBHSO013000N1	38708.09	N
SGRBHSO013002N1	38708.10	N

Sample ID	Lab Sample ID	Sample Type
SGRBHSO014000N1	38708.11	N
SGRBHS0014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHS0015000N1	38708.14	N
SGRBHS0015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHS0004000N1	39086.02	N
SGRBHSO005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHSO017000N1	39177.02	Ν
SGRBHSO018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHS0016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The !aboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

6. Laredo Air Force Base – Site Investigation -SGR Site

6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

 The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

 The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

 Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	Α

7. Quality Assurance Summary Table

		Holding Time/Calibrations/ Sample Condition	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: OK	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: 12.6 %D - Flag "J"
		Surrogate Recoveries/Internal Standards/Method Blanks	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Surrogate Recoveries: NA Internal Standards: NA Method Blank: CCB - PB = 2.3 ug/L - no Flags
ssurance ontrol Limits	Shotgun Ranges	LCS/LCSD Recoveries/RPD	LCS: OK	LCS: OK
Quality Control/Quality Assurance Results Outside of Quality Control Limits	Former Laredo Air Force Base Shotgun Ranges	MS/MSD Recoveries/RPD/Sample Duplicate RPD	MS/MSD Recoveries/RPD: All OK Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK
		Associated Samples	SGRBHSO001000N1 SGRBHSO001002N1 SGRBHSO002000N1 SGRBHSO002000N1 SGRBHSO003002N1 SGRBHSO003002N1 SGRBHSO004002N1 SGRBHSO004002N1 SGRBHSO00500N1 SGRBHSO00500N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO0000N1 SGRBHSO0000N1 SGRBHSO00800N1 SGRBHSO00900N1 SGRBHSO00900N1 SGRBHSO00900N1 SGRBHSO01000N1 MSS from SGRBHSO01000N1	SGRBHSO009002N1 SGRBHSO010000FD1 SGRBHSO010002N1 SGRBHSO011000N1 SGRBHSO011002N1 SGRBHWQ012000EB1 SGRBHSO012000EB1
		Analysis/Batch	Lead / SDG 38707	Lead / SDG 38708

		Quality Control/Quality Assurance Results Outside of Quality Control Limits	surance ontrol Limits		
		Former Laredo Air Force Base Shotgun Ranges	hotgun Ranges		
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
	SGRBHSO012002N1 SGRBHSO013000N1 SGRBHSO013002N1 SGRBHSO014000N1 SGRBHSO014002N1 SGRBHWQ015000EB1 SGRBHSO015000N1		_		•
Lead / SPLP Lead SDG 39086	SGRBHSO002000N1 SGRBHSO004000N1 SGRBHSO005000N1 SGRBHSO006000FD1 SGRBHSO001000N1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	rCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Samples received in good condition. Holding Times: OK
Lead / SPLP Lead SDG 39177	SGRBHSO016000N1 SGRBHSO017000N1 SGRBHSO018000N1 SGRBHSO018000MS1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Serial Dilutions: OK Samples received in good condition. Holding Times: OK Calibrations: OK
Lead / SDG 39390	SGRBHSO016000N1 SGRBHSO017000N1 SGRBHSO018000N1 SGRBHSO018000MS1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Serial Dilutions: OK Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: OK



Sample Analytical Results

Data Review and Validation	for:	Metals and/	or	Cyani	de	0,	<u>En</u>	only_		
Project Name & Task:	L	AREDO AFB				IW	ΤP			
Project # & Case/SDG:	14	7436.DV.ZZ				387	707			
/	/- 84 6 (6	5010B,7000 Series)	٦	7 200	seri	es [\neg	300 series	SM	3000 series
DAECEE DNE	FSC	Other:				Nui	mh	er of Samples:		
G: 11 OC Sloss ///	11 1	13/14-FDUP, 20/211	6	7 - 1	1/16	191	n	16/2168		
Field QC Samples:///	12	13/17-10ap 1001al	<u> </u>	11/1	0	/_	4 .	2114		
terrened by the man				9//	2,	100	90			
Matrix: ☐ Water ☐ Soil		O ther								
Quality Control	Form	Requirements				Ch		. 1		lags Applied
	#		╄	_`	_		_	ee comments)	(s	ee comments)
Data Pkg Complete (DP)		All required deliverables in pkg.		40K		No*	<u></u>	Not provided	十	Flags Applie
		All samples on COC reported	┼┾	40K	_	No*		N/A	十	Flags Applied
Holding Times (HT)	1	Cyanide 14 day HT met	┼┾	OK	-	No* No*		N/A	┾	Flags Applied Flags Applied
	14, COC	Mercury 28 day HT met	 -	JOK_ OK	_	No*	片	N/A	十	Flags Applie
	 	Other metals 160 day HT met	╬	OK OK		No*	늗	Not provided	十	Flags Applie
Initial Calibration (IC)	14	Min. initial # of levels per method	┼┾	OK		No*		Not provided	L	i inda ubbiic
	raw	Linearity method criteria	┼┾	JOK JOK	-	No*	1-	a Mor brovided		
	14	ICV criteria		FOK	-	No*				Flags Applie
Continuing Calibration (CC)	1	CCV frequency		10K	_	No*			-	i lags Applic
	2	CCV critieria	-	CLOK DOV	H	No*		see blnk wksht	П	Flags Applie
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)		OK	Ħ	No*	\vdash	see blnk wksht	1	, lugo , p pile
ICB and CCB	3	ICB, CCB		Jok	H	No*		J See DILIK MYSHE		
Prep Blank Frequency (PB)	3	1 PB per batch		46K	H	No*			П	Flags Applie
ICP Interference Check (ICS)	5	Method criteria met MS/MSD MS/LD None*		40K	H	No*			十	Flags Applie
MS/MSD or MS/LD	5	The state of the s		4 OK	Ħ	No*			-	_ , , , , , , , , , , , , , , , , , , ,
	6	Recovery Limits: Lab Heth Precision criteria		JOK	H	No*			1	
- Paran	5	Criteria met	╁	ОК	H	No*		N/A	$\dagger T$	Flags Applie
Post Spike Samp. Recov.	6	Criteria met	╁	40K	H	No*		N/A	忙	Flags Applie
Duplicate Samples (LD)	7	Frequency	_	4OK	H	No*	_	N/A	ΤĒ	Flags Applie
LCS (BS) 4 (CS only LCS/LCSD	'	Acceptance criteria met		J OK	H	No*	_		┧ ̄	
	8	Criteria met	芐	ОК	十	No*	_	N/A	T	Flags Applie
Standard Addition ICP Serial Dilution (SD)	9	Criteria met	十十	J OK	1	No*	_	N/A		Flags Applie
Internal Standard (IS)	 	Internal Standards used	廿	ОК	T	No*		N/A		
Sample Evaluations (SAM)	1	All hits within cal. Range	廿	LOK	T	No*		All ND	T	Flags Applie
Sample Evaluations (SAM)	1	Total > Dissolved	Ĭ	Ток	〒	•	•	N/A		Flags Appli
E'-14 Developtor (FD)	1	Precision of native vs Field Dup	廿	ОК	L	No*	_	N/A		Flags Applie
Field Duplicates (FD)		All requirement items may not apply to ever	rv a				_			
• •	mous. 1	in requirement tients may not approprie	,							
Case Narrative Comments:	****							· · · · · · · · · · · · · · · · · · ·		
		10 EXCEPTIONS	Hi	0181	<u> </u>					
		~		. 4						
OC Item		Com	ner	its						
F. N. 11/1	17	= 10 /22,9		es) =	=	78.4		
ruge -11/1	11.	11 T" 12 1/2		,		///	7	7		
	<u> 149</u>	J MAN HE		u				<u> </u>		

DV_wksht_0300.xls

Page _____ of ____

CLIENT SAMPLE ID

	HS0001000N1
Name: SOUTHWEST_LAB_OF_OK	Contract:CH2M-OKC
Code: SWOK Case No.: 38707	SAS No.: SDG No.: 38707_
Matrix (soil/water): SOIL_	Lab Sample ID: 38707.01
Torrel (low/med): LOW	Date Received: 05/25/99

Level (low/med): LOW_ % Solids: _87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

7439-92-1 I		18.9			P
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			- -		
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			1-1		
			-		
			-		_
			-		_
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			- -		_
			- -		-
			- -		-
			= =		: =
			- -	·	-

Color Before: Color After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUN
Comments: CLIENT_ID:_	SGRBHSO001000N1					
		FOR	M I - IN			

W 4/19/100 05044

							HS0001	002N1
		SOUTHWEST_LA	B_OF_	OK		Contract: CH2M-OKC		
σr	Code:	SWOK_	Case	No.:	38707	SAS No.:	 SDG No.:	38707

fatrix (soil/water): SOIL_
Level (low/med): LOW___

; Solids:

LOW___85.3

Lab Sample ID: 38707.02 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					I
CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	12.8	_		P_
			_		
			_		_
			_		

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			_		
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			_		_
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	Before: After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM	
CL:		_SGRBHS0001002N1_						
							·	
***************************************	FORM I - IN							

14/13

CLIENT SAMPLE ID

				HS0002000N1	
T	LAB OF	OK	Contract: CH2M-OKC		

Name: SOUTHWEST_ Case No.: 38707 SAS No.: Code: SWOK___

Matrix (soil/water): SOIL_ Level (low/med):

: SDG No.: 38707_ Lab Sample ID: 38707.03 Date Received: 05/25/99

% Solids:

LOW___92.3

Concentration Units (uq/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	M
7439-92-1	Lead	50.8			P_
			-		
			_		
			_		
			_		
	***		-	***************************************	
			_		
			=		_
			-		_
			-		_
			-		-
			-		-
			=		
			<u> -</u>		
			-		-
			-		-
			: =		_
			: =		: -
			- -	.	-

	Before: After:	BROWN	Clarity Clarity		CLEAR_	Texture: Artifacts:	MEDIUM
Commer CL:		SGRBHSO002000N1_				•	
			FOR	M I - IN	<u> </u>		

Matrix (soil/water): SOIL_ Lab Sample	HS0002002N1 DG No.: 38707 ID: 38707.04 red: 05/25/99
Concentration Units (ug/L or mg/kg dry weight): M	1G/KG
	 1

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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	7.9	_		<u>P</u> _
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Color Before: Color After:	BROWN	Clarity I	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLIENT_ID:_	SGRBHSO002002N1					
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11/3

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INORGANIC	ANALYSES	DATA	SHEET

							HSOOC)3000N1
Ĵ	Name ·	SOUTHWEST	LAB OF OK	Contr	act:CH2M-O	KC		
	Code:		Case No.:	38707 S	AS No.:		SDG No.	.: 38707_
		oil/water)			Lab	Sample	ID: 38	3707.05

Level (low/med): % Solids: LOW___91.2 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

			T		1
CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	7.0			P_
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Color Before: Color After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUN
Comments: CLIENT_ID:	_SGRBHSO003000N1					
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CLIENT SAMPLE ID

el (low/med olids:	i): LOW_ _91.	0	Contract:CH 707 SAS No.	Da	ate Rec	eive	OG No.: 3 ID: 38707 ed: 05/25	7.06
	CAS No.		Concentration	П		М		
	7439-92-1	Lead	6.4	- 		P_		
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r Before: r After:		Clari Clari	ty Before: CLE	AR_	-		cture:	MEDIUM

FORM I - IN

14/13

CLIENT SAMPLE ID

	HSO004000N1
Name: SOUTHWEST_LAB_O	
Name: SOUTHWEST_LAB_O Code: SWOK Ca	e No.: 38707 SAS No.: SDG No.: 38707
Matrix (soil/water): SOIL	Lab Sample ID: 38707.07
Level (low/med): LOW_	Date Received: 05/25/99
% Solids:89.	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	68.9			P_
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Comments: CLIENT_ID:_S	GRBHSO004000N1_					
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							HS	SO004(002N1	
ď£	Name:	SOUTHWEST	LAB OF OK	Cor	tract:CH2M-	-OKC				
Lab	Code:	SWOK	Case No.:	38707	SAS No.:		SDG	No.:	38707	_
		1 / - 1 \	COTT						. <u>-</u>	_

Matrix (soil/water): SOIL_ Level (low/med): LOW

Lab Sample ID: 38707.08 Date Received: 05/25/99

% Solids:

_87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

7439-92-1 Lead	CAS No.	Analyte	Concentration	С	Q	м
	7439-92-1	Lead	6.2	-		<u>P</u>
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Comme		_SGRBHSO004002N1_					
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CLIENT SAMPLE ID

ø'	areas ora	HS0005000N1
Name: SOUTHWEST_LAB_OF_OK	Contract:CH2M-OKC	
D Code: SWOK Case No.: 38	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DG No.: 38707_
Matrix (soil/water): SOIL_		ID: 38707.09
Level (low/med): LOW	Date Receiv	red: 05/25/99
% Solids: 92.7		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

			\Box	<u> </u>	
CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	269			P_
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	Before: After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUN
Commer CL	nts: IENT_ID:_	SGRBHS0005000N1					
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W4//3 05052

CLIENT SAMPLE ID

ab Name: SOUTHWEST_	LAB_OF_OK	Contract:CH2M-OKC	HS0005002N1
ab Code: SWOK	Case No.: 3870		SDG No.: 38707_
			ID: 38707.10 -
Level (low/med):	LOW	Date Recei	ved: 05/25/99
Solids:	_89.3		,

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	7.8			<u>P</u>
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Color Before: Color After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLIENT_ID:_S	GGRBHSO005002N1			***************************************		
		FORM	1 - IN			

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	-	-		HS0006000N1
INORGANIC	ANALYSES	DATA	SHEET	

Matrix (soil/water): SOIL_ Lab Sample ID: 38707.11 Level (low/med): LOW_ Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М		_	_ (
7439-92-1	Lead	10.0			P_	J	<i>[-</i>	= D
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	Before: After:	BROWN YELLOW	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIO
Commer CL]	nts: [ENT_ID:_	SGRBHSO006000N1					
			FOR	M I - IN			

05054

CLIENT SAMPLE ID

HSO006000FD ab Name: SOUTHWEST_LAB_OF_OK_____ Contract:CH2M-OKC Jab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707 Matrix (soil/water): SOIL_ Lab Sample ID: 38707.12 Level (low/med): LOW Date Received: 05/25/99 % Solids: _87.2 Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Analyte Concentration C 7439-92-1 Lead 22.9 J FA Color Before: BROWN_ Clarity Belole: CLEAR_ Texture: MEDIUM Color After: YELLOW___ Artifacts: _____ Comments: CLIENT_ID:_SGRBHS0006000FD___

FORM I - IN

CLIENT SAMPLE ID

	•	INOUGHNIC	ANALISES DATA	111757			
Name: SOUT	HWEST_LAB_OI	F_OK	Contract:CH2	2M-OKC		HSO00600	
Lab Code: SWOK Matrix (soil/watrix (soil/watrix (soil/watrix Solids:	Cas ater): SOIL	se No.: 38	707 SAS No.	Lab S	ample	DG No.: 3 ID: 38707 ed: 05/25	.13
Co			/L or mg/kg dry	y weig	nt): M	IG/KG	
	CAS No.	Analyte	Concentration	c ç) M	-	
	7439-92-1	Lead	8.3		P_	-	
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR_		exture: rtifacts:	MEDIUM
Comments: CLIENT_ID:_	SGRBHS00060	02N1					

FORM I - IN

CLIENT SAMPLE ID

ab Name: SOUT ab Code: SWOK atrix (soil/wa evel (low/med Solids:	HWEST_LAB_O Ca ater): SOIL): LOW_ _86.	F_OK_ se No.: 38	Contract:CH	2M-OKC : Lab Sampl	HS0006002FD SDG No.: 38707_ Le ID: 38707.14 eived: 05/25/99
Co	ncentration	Units (ug	/L or mg/kg dry	y weight):	: MG/KG
	CAS No.	Analyte	Concentration	c Q	М
	7439-92-1	Lead	7.2		P_
	As-company and the second seco				
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Color Before:		Clari Clari	ty Before: <u>CLE</u>	AR	Texture: MEDIUM Artifacts:
Comments: CLIENT_ID:_	SGRBHS00060	02FD			

FORM I - IN

HL 4/13

CLIENT SAMPLE ID

Name: SOUTHWEST	LAB OF OK	Contract:CH2		SO007000N1
ab Code: SWOK Matrix (soil/water):	Case No.: 3870	SAS No.:	SDG	No.: 38707_
			Lab Sample ID	
Level (low/med): % Solids:	LOW87.2	1	Date Received	: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

i					
CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	10.9	_		P_
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Commer CL		SGRBHS0007000N1					***************************************
			FOR	M I - IN			

CLIENT SAMPLE ID

ab Name: SOUTI Lab Code: SWOK Matrix (soil/wa Level (low/med & Solids:	HWEST_LAB_O Ca ater): SOIL): LOW _92.		Contract:CH2 707 SAS No.:	2M- : La Da	OKC ab Sampl ate Rece	SD e I	HSO00700 G No.: 3 D: 38707 d: 05/25	38707_ 7.16	Ĵ
Cor	ncentration	Units (ug	/L or mg/kg dry	7 W	weight):	MG	/KG		
	CAS No.	Analyte	Concentration	С	Q	M			
	7439-92-1	Lead	6.2	- -	***************************************	P_			
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR			xture: tifacts:	MEDIUM	
Comments: CLIENT_ID:_	_SGRBHSO0070	02N1							

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CLIENT SAMPLE ID

		INORGANIC .	ANALYSES DATA S	SHEET	
Name: SOUTH Lab Code: SWOK Matrix (soil/wi Level (low/med % Solids:	$\frac{\overline{C}a}{ater}$: SOIL	se No.: 38 -	Contract:CH2 707 SAS No.:	: Lab Sam	HS0008000N1 SDG No.: 38707 ple ID: 38707.17 ceived: 05/25/99
Con	ncentration	Units (ug	/L or mg/kg dry	y weight): MG/KG
	1	T		T T	
	CAS No.	Analyte	Concentration	C Q	M
	7439-92-1	Lead	9.4	_	$-\left {P}\right $
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR_	Texture: MEDIUM Artifacts:
Comments:					
	SGRBHS00080	00N1			**************************************

FORM I - IN

JU 1/3 05069

HS0008002N1

ab Name: SOUTHWEST_LAB_OF_OK____ Contract: CH2M-OKC Case No.: 38707 SAS No.: _ab Code: SWOK__

SDG No.: 38707_ Lab Sample ID: 38707.18

Matrix (soil/water): SOIL_ Level (low/med): LOW_

Date Received: 05/25/99

ኔ Solids:

_95.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration		Q	IAI
7439-92-1	Lead	4.3			P_

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Color B Color A	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLIE	GRBHSO008002N1					
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CLIENT SAMPLE ID

Name: SOUT Lab Code: SWOK Matrix (soil/w Level (low/med % Solids:	$\underline{\underline{}}$ Ca ater): SOIL	se No.: 38	Contract:CH2 707 SAS No.:	: Lab Sample	HS0009000N1 SDG No.: 38707 ID: 38707.19 Lved: 05/25/99
Со	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG
	CAS No.	Analyte	Concentration	C Q M	1
	7439-92-1	Lead	38.1		-
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Color Before: Color After:	BROWN	Clari Clari	ty Before: <u>CLE</u>	AR_	Texture: MEDIUM Artifacts:
Comments: CLIENT_ID:_	SGRBHS00090	00N1			

FORM I - IN

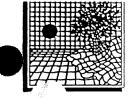
3062

CLIENT SAMPLE ID

ab Name: SOUTHWEST_LAB_ Lab Code: SWOK C Matrix (soil/water): SOI Level (low/med): LOW % Solids:87 Concentration	ase No.: 38 L_ 	Contract:CH2 707 SAS No.: /L or mg/kg dry	La Da	ab Sampl ate Rece	eive	HS00010000N	
CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	3.8	_		<u>P_</u>		
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Color Before: BROWN Clarity Before: Texture: MEDIUM Color After: YELLOW Clarity After: CLEAR Artifacts: CLIENT_ID: SGRBHS00010000N FORM I - IN

14/13



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill

REPORT : 38707.05

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

SAMPLED : 05/21/99

SAMPLE #: SGRBHS0003000N1

LAB# : 38707.05

SUBMITTED: 05/25/99

LOCATION:

MATRIX : Soil

%MOISTURE: 8.8

MISCELLANEOUS

DATE DATE REFERENCE

PARAMETER

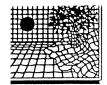
RESULTS**

UNITS PREPARED ANALYZED METHOD

PH*

8.6

06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38707.10

SAMPLE #: SGRBHS0005002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

%MOISTURE: 10.7

MISCELLANEOUS

DATE

DATE

REFERENCE

PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

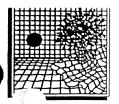
PH*

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06/05/99 SM 4500H/EPA 150.1

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

_MHill

REPORT : 38707.17

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

SAMPLED : 05/21/99 `

SAMPLE #: SGRBHS0008000N1

LAB# : 38707.17

SUBMITTED: 05/25/99

DATE

LOCATION:

MATRIX : Soil

%MOISTURE: 7.8

MISCELLANEOUS

DATE

REFERENCE

PARAMETER

RESULTS**

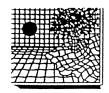
UNITS PREPARED ANALYZED METHOD

PH*

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su

______ 06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.03

SAMPLE #: SGRBHS0010002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

%MOISTURE: 8.0

MISCELLANEOUS

DATE DATE REFERENCE

PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

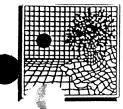
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su

06/05/99 SM 4500H/EPA 150.1

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

.ZMHill

REPORT : 38708.07

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.07

SAMPLED : 05/21/99 SUBMITTED: 05/25/99

SAMPLE #: SGRBHS0012000N1

LOCATION:

MATRIX : Soil

%MOISTURE: 6.0

MISCELLANEOUS

DATE

DATE REFERENCE

PARAMETER

RESULTS**

UNITS PREPARED ANALYZED METHOD

PH*

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06/05/99 SM 4500H/EPA 150.1

Data Review and Validation	Data Review and Validation for: Metals and/or Cyanide Listo Only								
Project Name & Task:	L	AREDO AFB				ΙV	VTP	-	
Project # & Case/SDG:	1	47436.DV.ZZ				387	708A	-	
<u> </u>	W-846 (6010B,7000 Series)		7200				- ¬	
	IFESC	Other:	<u> </u>	1200) se		300 series		M 3000 series
	7/7		_				imber of Samples		7 total
Field QC Samples:	13	-FB49, 2-m5/1	46	1	_5	741	13-EB		
Reviewed by & Date:	A	elle		4	<u></u>	13	17000	_	
Matrix: ☐ Water ☐ Sc	il 🗌	Other							
	132								
Quality Control	Form	Requirements		arn.	• .		ieck		lags Applied
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	╁,	TOK.	T	No*	d, see comments) Not provided	1-9	see comments)
		All samples on COC reported		OK	十	No*	Not provided	┼┾	Flags Applied Flags Applied
Holding Times (HT)		Cyanide 14 day HT met	忙	ОК	T	No*	LANIA	┼╄	Flags Applied
	14,	Mercury 28 day HT met	T	ОК	T	No*	4N/A	厅	Flags Applied
	COC	Other metals 160 day HT met		OK	Ī	No*	□ N/A	恄	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	TL	ОК	I	No*	Not provided		Flags Applied
	raw	Linearity method criteria	T	ОК		No*	2 Not provided	T	2 **** 3 * V # P *** C **
	2	ICV criteria	6	JOK.		No*			
Continuing Calibration (CC)	14	CCV frequency		JOK_	·	No*		T	Flags Applied
	2	CCV critieria	4	JOK_		No*			
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	L	-OK	L	No*	see blnk wksht		Flags Applied
ICB and CCB	3	ICB, CCB	止	OK	<u>-</u>	No*	see blnk wksht		
Prep Blank Frequency (PB)	3	1 PB per batch		бк	L	No*	400	<u> </u>	
ICP Interference Check (ICS)	4	Method criteria met	-	OK.	L	No*	•		Flags Applied
MS/MSD or MS/LD	5	MS/MSD MS/LD None*		OK.	Ļ	No*		L	Flags Applied
4	5	Recovery Limits: Lab 4 Meth Precision criteria		OK_	누	No*			
Post Spike Samp. Recov.	5	Criteria met	₩	lok	╄	No*		-	1
Duplicate Samples (LD)	6	Criteria met	+-	OK OK	누	No*	N/A	뉴	Flags Applied
LCS (BS)	7	Frequency	_	OK	┝	No*	□ N/A	⊬	Flags Applied
LCS only LCS/LCSD	1	Acceptance criteria met	-	Jeк	H	No*	L N/A	 -	Flags Applied
Standard Addition	8	Criteria met	屵	OK	늗		PN/A	┢	Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	╁┾╴	ОК	1	10*	□ N/A	╁	Flags Applied Flags Applied
Internal Standard (IS)		Internal Standards used	厅	ОК	Ħ	No*		┝	J riags Applied
Sample Evaluations (SAM)	1	All hits within cal. Range	1	OK	П	No*	AIIND	\top	Flags Applied
	1	Total > Dissolved		ОК	ī		I NIA	厅	Flags Applied
Field Duplicates (FD)		Precision of native vs Field Dup	1	OK		No*	□ N/A		Flags Applied
This sheet is applicable to multiple me	thods. Al	l requirement items may not apply to every	ana	lytical	me	thod.			
Case Narrative Comments:									
	-50	WIAL DILLES				11	1 11 11		
		WITH DILLETTO	<u>U</u>			Mag	rged "E"	By	y hab.
OC Item		Comm	ents			***************************************			
CCB leas	d a	resected in c	00	3	0	Z	7.3us/	<u></u>	1/0
	ples	Africad - 1	2	FO	1	65	apple	es	
5b 16		12.6 70D - D	(de)			est	le sults		"J"
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	•	INORGANIC.	ANALYSES DATA	SHEET		,	
Name: SOUTH Code: SWOK Matrix (soil/wi Level (low/med) & Solids:	Cas ater): SOIL	se No.: 38	Contract:CH 708 SAS No.	: Lab	Sample	HSO009 SDG No.: = ID: 387 ived: 05/	38708A 08.01
Co	ncentration	Units (ug	/L or mg/kg dry	y wei	ght):	MG/KG	
	CAS No.	Analyte	Concentration			M	
	7439-92-1	Lead	13.4		E	F_ J	5D
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Color Before: Color After:	BROWN	Clari Clari	ty Before: $\overline{\text{CLE}}$	AR_		Texture: Artifact	MEDIUM
Comments: CLIENT_ID:_	_SGRBHS0009	002N1					

FORM I - IN

All 4/13/2000

wab Name: SOUTH ab Code: SWOK_ (atrix (soil/wa) wevel (low/med) Solids:	ter): SOIL : LOW92.:	- 3	Contract:CH2 708 SAS No.:	Lā Dā	ab Sampl ate Rece	e l ive	D: 387 ed: 05/	38708A 08.02
1								
	CAS No.	Analyte	Concentration	С	Q	M		
	7439-92-1	Lead	3.8	_ _	<u>==</u>	P_	J	5D
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Color Before: Color After:	BROWNYELLOW	Clarity Clarity		CLEAR_	Texture: Artifacts:	MEDIUM
CLIENT_ID:_	_SGRBHSO010000F	D				
		FORI	M I - IN			

Bly 13

J Name: SOUT Code: SWOK Matrix (soil/w Level (low/med % Solids:	ater): Soll	<u>-</u>	Contract:CH	Lab Sampl	HS001000 SDG No.: 3 e ID: 38708 ived: 05/29	38708A 3.03
Со	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	3.4	_ <u></u>	P_ J 3	0
1						
Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE		Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:_	_SGRBHSO010	002FD		***************************************		MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACON

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All 4/13 05073

CLIENT SAMPLE ID

INORGANIC ANALYSES DATA SHEET HS0011000N1 ab Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-OKC_ 1b Code: SWOK___ Case No.: 38708 SAS No.: _____ SDG No.: 38708A Lab Sample ID: 38708.04 atrix (soil/water): SOIL_ evel (low/med): LOW Date Received: 05/25/99 _87.3 Solids: Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Concentration C Analyte 5D \overline{P} I 7439-92-1 Lead 5.0 Color Before: BROWN______
Color After: YELLOW____ Clarity Before: CLEAR_ Texture: MEDIUM Artifacts: Comments:

FORM I - IN

CLIENT ID: SGRBHS0011000N1

CLIENT SAMPLE ID

		INORGANIC	ANALYSES DATA	SHEET		
Name: SOUT	HWEST_LAB_O	F_OK	Contract:CH	2M-OKC		11002N1
Level (low/med % Solids:	ater): SOIL	se No.: 38 _	708 SAS No.	: Lab Sam	SDG No. aple ID: 38 eceived: 05	.: 38708A 8708.05 5/25/99
Co	oncentration	Units (ug	/L or mg/kg dr	y weight	:): MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	5.2		- P J	50
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					_	
Color Before: Color After:		Clari Clari	ty Before: CLE	AR	Texture Artifact	
Comments: CLIENT_ID:_	SGRBHS0011	002N1		_		
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ab Name: SOUTH ab Code: SWOK_ atrix (soil/wa evel (low/med) Solids: Con	ter): SOIL_ : LOW _94.0			Lа Da	b Sample te Recei	SD SD Lve	G No.: D: 387	38708A 708.07 725/99
	CAS No.	Analyte	Concentration	С	Q 1	4		
	7439-92-1	Lead	9.2		I	P_	J	5D
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	Before: After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Commer CL:		_SGRBHSO012000N	1.				
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CLIENT SAMPLE ID

Sever (Tow/med Solids:	1): LOW_ _87.	9	Contract:CH2 708 SAS No.: /L or mg/kg dry	Date Rec	ole ID: 3870 ceived: 05/2	08.08 25/99
	CAS No.	Analyte	Concentration	C Q	м	
	7439-92-1	Lead	6.1		P_ J	50
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		-				

					_	
Color Before: Color After:		Clari Clari	ty Before: CLE	AR_	Texture: Artifacts	
Comments:						

CLIENT SAMPLE ID

.atrix (soil/water): SOIL_ Level (low/med): LOW_

% Solids:

LOW___88.2

Lab Sample ID: 38708.09 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М		
7439-92-1	Lead	36200	_	<u>-</u> E_	P_	J	5D
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Color Be Color Af	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comments CLIEN	_SGRBHSO013000N	L				
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CLIENT SAMPLE ID

lab Name: SOUT Code: SWOK Lacix (soil/w Level (low/med Solids:): LOW_ _83.	8	Contract:CH 708 SAS No.	Date Red	HS0013002N3 SDG No.: 3870 ple ID: 38708.10 peived: 05/25/99	 A80 0
	CAS No.	Analyte	Concentration	C Q	M	
	7439-92-1	Lead	8.8		P J SD	
Color Before: Color After:	BROWN	Clari Clari	ty Before: <u>CLE</u>	AR_	Texture: ME	DIU
Comments: CLIENT_ID:	_SGRBHSO013	002N1				

FORM I - IN

413 05079

						H	SO014	002N1
ab	Name:	SOUTHWEST	LAB OF OK	Co	ntract:CH2M-O	KC		
ab	Code:	SWOK	Case No.:	38708	SAS No.:	SDG	No.:	38708A
·~ + •	riar 100	oil/wator).	COTT.		T.ah	Cample II	1. 3870	12 12

fatrix (soil/water): SOIL_
Level (low/med): LOW___ _81.5 | Solids:

Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

I	· · · · · · · · · · · · · · · · · · ·				<u> </u>		
CAS No.	Analyte	Concentration	C	Q	М		
7439-92-1	Lead	6.4		E-	P_	J	5D
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Color Before Color After:	: BROWN	Clarity Before: Clarity After:	CLEAR_	Texture: Artifacts:	MEDIUN
Comments: CLIENT_ID	:SGRBHSO01400	2N1			
		FORM I - IN			

CLIENT SAMPLE ID

matrix (soil/waterix (soil/wat	ater): SOIL : LOW84.	se No.: 38 - 6	Contract:CH2 708 SAS No.: /L or mg/kg dry	La Da	b Sampl te Rece	SI SE Le I	HSO01500 OG No.: 3 ID: 38708 ed: 05/25	8708A .14
COI		Units (ug	/L Of mg/kg dry	/ W	ergne):	: M.G	3/ <i>K</i> G	
	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	9.9		_ E	P_	J.	5D
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Color Before: Color After:	BROWNYELLOW	Clari Clari	ty Before: CLE	AR			xture: tifacts:	MEDIUM
Comments: CLIENT_ID:_	_SGRBHSO015	000N1						

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41/3 05081

ab Name: SOUTH ab Code: SWOK_ atrix (soil/wa evel (low/med) Solids:	ater): SOIL		Contract:CHI 708 SAS No.	Lab Sample	HSO01500 SDG No.: 3 e ID: 38708 ived: 05/25	8708A
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG	
	CAS No.	Analyte	Concentration	C Q I	M	
	7439-92-1	Lead	15.4	- E	P_ J 5	D
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Color Before: Color After:	BROWN YELLOW	Clari Clari	ty Before: CLE	AR_	 Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:	_SGRBHS0015	002N1				

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CLIENT SAMPLE ID

Name: SOUT Code: SWOK Lix (soil/w Level (low/med Solids:	ater): WATE	K	Contract:CH 708 SAS No.	Lab S	ample	SGRBHWQ01200 DG No.: 38708B ID: 38708.06 red: 05/25/99
Со	ncentration	Units (ug	/L or mg/kg dry	y weig	ht): U	G/L_
	CAS No.	Analyte	Concentration	C Q	M	1 FB
	7439-92-1	Lead	2.1	<u></u>	$ _{\overline{P}_{-}}$	
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Color Before: Color After:	COLORLESS COLORLESS	Clarit Clarit	y Before: CLEA Cy After: CLEA	AR_ AR		xture:
Comments: CLEIENTS_ID	=_SGRBHWQ012					4
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Lab Name: SOUTHWEST_LAB_OF_OK	Contract:CH2M-OKC SGRBHWQ01500 8 SAS No.: SDG No.: 38708B Lab Sample ID: 38708.13 Date Received: 05/25/99
% Solids:0.0	or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	С	Q	М	It
7439-92-1	Lead	2.2	บิ		P_	
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Data Review and Validatio	n for:	Metals and	4	OF-	Cyan	ide	2	4	MONY		
Project Name & Task:	L.	AREDO AFB					ΙW	/T	P	-	
Project # & Case/SDG:	14	17436.DV.ZZ					39	08	6		
Methods: ILM04.0	W-846 (5010B,7000 Series)	- А	Г	200	seri	·		300 series] SM	1 3000 series
	IFESC	Other:							ber of Samples:		
Field QC Samples:									·		
Reviewed by & Date:	La	/, -			4/	//	2	7,	1000		
Matrix: ☐ Water ☐ So		Other	-			<i></i>	2/		vag)		
Matrix.	··	Calc									
Quality Control	Form	Requirements	T				Ch	ec	k	F	lags Applied
-	#		۱		(If No*	che			ee comments)		see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	I		бĸ	_	No*	Ė	Not provided	Ľ	Flags Applied
		All samples on COC reported	I	·	бк		No*				Flags Applied
Holding Times (HT)		Cyanide 14 day HT met			OK		No*		HV/A	T	Flags Applied
	14,	Mercury 28 day HT met	\perp		OK		No*	Ŀ	HV/A		Flags Applied
	COC	Other metals 160 day HT met	\perp	٤	OK		No*	L	N/A		Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	1	닏	ОК	_			Not provided		Flags Applied
		Linearity method criteria	1	\sqsubseteq	OK	_	No*		Not provided		
	2	ICV criteria	+	-	OK		No*				4
Continuing Calibration (CC)	14	CCV frequency	\perp		-OK	_	No*			L	Flags Applied
Blanks (PB,EB,FB/AB)	3	CCV critieria	+	-	OR	_	No*	_	1		T
ICB and CCB	3	Detects (>RL/CRDL)	+		OK	-	No*	닏	see blnk wksht	L	Flags Applied
Prep Blank Frequency (PB)	3	ICB, CCB 1 PB per batch	+		OK		No*	L	see blnk wksht		
ICP Interference Check (ICS)	1 4	Method criteria met	+	_	OK		No*				I = 1
MS/MSD or MS/LD	1 5	4 MS/MSD MS/LD MS/LD Mone*	+		о к [No* No*			╄	Flags Applied
Wildings of Wildings	5	Recovery Limits: Lab Meth	+		OK I		No*			L	Flags Applied
	6	Precision criteria	+		OK	_	No*				
Post Spike Samp. Recov.	5	Criteria met	+	Ħ	OK .	_	No*	Т.	N/A	Т	Flags Applied
Duplicate Samples (LD)	6	Criteria met	+	A	ok		No*	片	N/A	╁	Flags Applied
LCS (BS)		Frequency	T	_	- σκ_	_	No*	t	N/A	十	Flags Applied
LCS only LCS/LCSD		Acceptance criteria met	T		OK	_	No*	-	IIVA		, rago replico
Standard Addition	8	Criteria met	T	$\overline{\sqcap}$	ок [_	No*	T-	N/A	Т	Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	Т	V	OR	_	No*	广	N/A		Flags Applied
Internal Standard (IS)		Internal Standards used			ок	_	No*	┝	N/A		
Sample Evaluations (SAM)	1	All hits within cal. Range	П	Q	OK [No*		All ND	T	Flags Applied
	1	Total > Dissolved			ок [No*	Ŀ	N/A		Flags Applied
Field Duplicates (FD)		Precision of native vs Field Dup	\perp		OK [1	N/A		Flags Applied
This sheet is applicable to multiple me	thods. Al	requirement items may not apply to ever	y a	ınai	ytical r	neth	od.				
Case Narrative Comments:		_									
		110 00 16 04 11 8	_				***********				
	, ,	NO EXCEPTIONS		_							
NOTS: 5 suples	11110	certy hogoeld-in you	4	<u>U</u>	791		95		506 397	10	<i>71</i>
OC Item	•	Comm	161	nts	9	,					
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U.S. EPA - CLP

CLIENT SAMPLE --

4			INORGANIC	ANALYSES DATA	SHEET	CHIENI SAMPLE ID
ab Nab C	ame: SOU.	THWEST_LAB_C	F_OK_ use No.: 39	Contract:CH	2M-OKC	SGRBHS000200
evel.	x (soil/v (low/med ids:	vareti: SOII	·		Lab Sam	SDG No.: 39086_ple ID: 39086.01 ceived: 06/21/99
	Co	oncentration	Units (ug	/L or mg/kg dry	y weight): MG/KG
		CAS No.	Analyte	Concentration	C Q	М
		7439-92-1	Lead	54.8		_ P_
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	Before: After:	BROWN_COLORLESS	Clari Clari	ty Before:		Texture: MEDIUM Artifacts:
CL1		SGRBHS000200	00N1			
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CLIENT SAMPLE

ab Name: SOUTHWEST_LAB_OF_OK	
Concentration Units (ug/L or mg/kg dry weight): MG/KG	
CAS No. Analyte Concentration C Q M 7439-92-1 Lead	
Color Before: BROWN Clarity Before: Texture: MEDIUM Color After: COLORLESS Clarity After: Artifacts:	
<pre>CLIENT_ID:=SGRBHS0004000N1</pre>	
FORM I - IN	
FORM I - IN	

CLIENT SAMPLE ID

ab Name: SOUT	THWEST_LAB_O	F_OK	Contract:CH	2M-	окс	SGRBHS	3000500
<pre>fatrix (soil/v .evel (low/med); Solids:</pre>	vater): SOIL i): LOW _92.		Contract:CH 086 SAS No.	: La Da	b Samp te Rec	SDG No.: le ID: 39(eived: 06/) 86 D3 =
Co	oncentration	Units (ug	/L or mg/kg dr	y w	eight)	: MG/KG	
	CAS No.	Analyte	Concentration	С	Q	М	
	7439-92-1	Lead	134	- : - :		P_	
	-			- : - :			
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				<u> - </u>			
Color Before: Color After:	BROWN COLORLESS	Clarit Clarit	ty Before:			Texture:	
Comments: CLIENT_ID:=	SGRBHS000500	00N1					
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CLIENT SAMPLE ID

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so	FRBHS	000600
SDG	No.:	39086

							SGRBHS	00600
ď£	Name:	SOUTHWEST_	_LAB_OF_OK	C	ontract:CH2M-(OKC		
		SWOK	Case No.:	39086	SAS No.:	SI	DG No.:	39086
1t	rix (so	oil/water):	SOIL_		Lal	o Sample :	ID: 3908	36.04
3V6	el (lov	v/med):	LOW		Dat	te Receive	ed: 06/2	21/99

_90.0 Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	14.4	₿		P_	T	IB
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	Before: After:	BROWN COLORLESS	Clarity Clarity	Before: After:	 Texture: Artifacts:	MEDIUM
CL	nts: IENT_ID:=	SGRBHS0006000FD				
			FORI	M I - IN		

U.S. EPA - CLP CLIENT SAMPLE ID INORGANIC ANALYSES DATA SHEET SGRBHS000100 Lab Name: SOUTHWEST_LAB_OF_OK___ Lab Code: SWOK___ Case No. Contract:CH2M-OKC Case No.: 39086 SAS No.: SDG No.: 39086_ fatrix (soil/water): SOIL_ Lab Sample ID: 39086.05 _evel (low/med): LOW Date Received: 06/21/99 Solids: _89.4 Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Analyte Concentration C Q Μ 7439-92-1 Lead <u>P_</u> IB J 21.4 B Color Before: BROWN Clarity Before: ____ Texture: MEDIUM Color After: COLORLESS

	111.001.	COLORGEDS	Clarity	Arter:	 Artifacts:
Comme:		SGRBHS0001000N1			
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CLIENT SAMPLE ID

ix (soil/wall (low/med) lids:	ater): WATE): LOW0.0	R 0	Contract:CH: 086 SAS No. /L or mg/kg dr	Lab Sample Date Recei	002000N1 SDG No.: 390 ID: 39086.0 ved: 06/21/9	1
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	CAS No.	Analyte	Concentration			_
	7439-92-1	Lead	30.7	P	[] J .	IB
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or Before: or After:	COLORLESS COLORLESS		ty Before: CLE ty After: CLE		Texture: _ Artifacts: _	
ments: CLIENT_ID=S	SGRBHSO00200	00N1				*****
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CLIENT	' SAI	MP	LE	II
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Name: SOUTH Code: SWOK_ rix (soil/wat rel (low/med) Solids:	WEST_LAB_OF Cas Ler): WATER : LOW0.0		Contract:CH: 086 SAS No.	2M : La Da	-OKC ab Sampl ate Rece	Si Le	004000N DG No.: : ID: 3908 ed: 06/2	39086_ 6.02 1/99
Cond	centration	Units (ug,	/L or mg/kg dry	у	weight)	: U	G/L_	
	CAS No.	Analyte	Concentration	С	Q	М	***	
7	7439-92-1	Lead	73.5	₽		P_	J	工B
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omments: CLIENT_ID=SG	RBHS0004000	N1						

FORM I - IN

15093 HR/13

CLIENT SAMPLE ID

]	INORGANIC	ANALYSES DATA S	SHEET	
Name: SOUTH Code: SWOK_ rix (soil/wa el (low/med)	Cas (ter): WATER	se No.: 39	Contract:CH2 086 SAS No.:	: Lab Samp:	005000N1 SDG No.: 39086_ le ID: 39086.03 eived: 06/21/99
olids:	0.0	<u> </u>		Date Rece	sived: 06/21/99
01100.					
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight)	: UG/L_
	CAS No.	Analyte	Concentration	C Q	М
	7439-92-1	Lead	857		P_
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or Before:	COLORLESS	Clari	tu Pofozo CIE	λD	Touture.
or After:	COLORLESS	Clari	ty Before: CLE ty After: CLE		Texture: Artifacts:
ments: CLIENT_ID=S	GRBHS0005000)N1			

FORM I - IN

14/13

CLIENT SAMPLE ID

· Ma		INORGANIC	ANALYSES DATA	SHI	EET	,-		
Code: SWOK	Ca ater): WATE	se No.: 39 R	Contract:CH	: Lā	-OKC ab Sampi ate Rece	le I	0060001 OG No.: D: 3908 ed: 06/2	39086_ 36.04
Co	ncentration	Units (ug	/L or mg/kg dr	у •	weight)	: UG	S/L_	
	CAS No.	Analyte	Concentration		Q	M		
	7439-92-1	Lead	4.6	₽		P_	J	IB
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or Doforo.	COLORLESS	G1	- D - C - C - C - C	· — ·			İ	
or After:	COLORLESS	Clari	ty Before: CLEA ty After: CLEA	AR_ AR			cture:	•
ments: CLIENT_ID=S	GRBHS0006000			-				• *************************************
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FORM I - IN

\$5095

CLIENT SAMPLE ID

		INORGANIC A	ANALYSES DATA S	SHEET		
Namo - GOITTI					001000N1	
Name: SOUTH Code: SWOK_ ix (soil/wa l (low/med) lids:	ater): WATE	R —	Contract:CH2 086 SAS No.	Lab Sampl	 SDG No.: 390 E ID: 39086.0 ived: 06/21/9	5
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight):	UG/L_	
	CAS No.	Analyte	Concentration	C Q	м	
	7439-92-1	Lead	47.1	B	P_	FB
or Before: or After:	COLORLESS COLORLESS	Clari Clari	ty Before: CLE ty After: CLE	EAR_ EAR_	Texture: _ Artifacts: _	5
ments: CLIENT_ID=S	GRBHSO00100	0N1				

FORM I - IN

05096

Data Review and Validation	ı for:	TOTAL & SPLP Metals and	or Cyar	nide lynd only					
Project Name & Task:	L	AREDO AFB	IWTP						
Project # & Case/SDG:	1-	47436.DV.ZZ		39177					
Methods: ILM04.0 PSW	/-846 (6010B,7000 Series)		series 300 series	1				
	ESC	Other:	1 1200		SM 3000 series				
			-	Number of Samples:	6 total				
Field QC Samples:	-m	3/M5D							
Reviewed by & Date:	Ho	la lla	4	1/3/2000					
Matrix: Water Soil		Other							
Quality Control	Form	Requirements		Check	Flags Applied				
	#	1	(If No	* checked, see comments)	(see comments)				
Data Pkg Complete (DP)		All required deliverables in pkg.	Leak	☐ No* ☐ Not provided	☐ Flags Applied				
	COC	All samples on COC reported	MAKK	Z-140*	☐ Flags Applied				
Holding Times (HT)		Cyanide 14 day HT met	∐ ок	No* LAN/A	☐ Flags Applied				
	14,	Mercury 28 day HT met	ОК	No* LAN/A	☐ Flags Applied				
	COC	Other metals 160 day HT met	1 OK	□ No* □ N/A	Flags Applied				
Initial Calibration (IC)	14	Min. initial # of levels per method	Ок	No* ∠Kot provided	Flags Applied				
	raw	Linearity method criteria	Ок	☐ No* ☐ Not provided					
2		ICV criteria	LOK	□ No*					
Continuing Calibration (CC)		CCV frequency	2 OK	□ No*	Flags Applied				
	2	CCV critieria	LOK	No*					
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	₽ OK	No* ☐ see blnk wksht	Flags Applied				
ICB and CCB	3	ICB, CCB	4-OK	□ No* □ see blnk wksht	3-14psa				
Prep Blank Frequency (PB)	3	1 PB per batch	∠ OK	□ No*					
ICP Interference Check (ICS)	4	Method criteria met	LOK	No*	Flags Applied				
MS/MSD or MS/LD	5	MS/MSD MS/LD None*	COK	No*	☐ Flags Applied				
	5	Recovery Limits: Lab Ameth	LOK	□ No*					
	6	Precision criteria	∠ eκ	No*					
Post Spike Samp. Recov.	5	Criteria met	Ок	No* ZNA	☐ Flags Applied				
Duplicate Samples (LD)	6	Criteria met	JOK	□ No* □ N/A	☐ Flags Applied				
LCS (BS)	7	Frequency	L OK	□ No* □ N/A	☐ Flags Applied				
DLCS only PLCS/LCSD		Acceptance criteria met	LOK	No*					
Standard Addition	8	Criteria met	Ок	□ No* □ N/A	Flags Applied				
ICP Serial Dilution (SD)	9	Criteria met	LOK	□No* □N/A	Flags Applied				
Internal Standard (IS)		Internal Standards used	ОК	□ No* □N/A					
Sample Evaluations (SAM)	1	All hits within cal. Range	LOK	□ No* □ All ND	☐ Flags Applied				
		Total > Dissolved	□ок	□No* □N/A	☐ Flags Applied				
Field Duplicates (FD)	1	Precision of native vs Field Dup	Ок	No* PN/A	☐ Flags Applied				
This sheet is applicable to multiple meth Case Narrative Comments:	ods. Al	l requirement items may not apply to every	analytical	method.					
Case Nati ative Comments:		NO ERMEDTIONS	11/	OTE D	***************************************				
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Metal&CN

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CLIENT SAMPLE TO

		INORGANIC	ANALYSES DATA	SHEET		mare TE
. rix (soil, Level (low/me % Solids:	/water): SOII ed): LOW84.	4 <u>-</u>	Contract:CH 177 SAS No.	Lab Sam Date Re	0160001 SDG No.: ple ID: 3913 ceived: 06/2	39177_
C	Concentration	Units (ug	/L or mg/kg dr	y weight): MG/KG	
	CAS No.	Analyte			M	
	7439-92-1	Lead	23.3		_ P_	
-)						
۵						
Color Before: Color After:	BROWN	Clarit Clarit	y Before: CLEA	IR_	Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:	_SGRBHS001600	0N1				***************************************
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FORM I - IN HB 4/13/2000 05093

CLIENT SAMPLE ID

Solids:	1): LOW83. oncentration	2	/L or mg/kg dry			ived: 06/26 MG/KG	/99
	CAS No.	Analyte	Concentration	С	Q	1	
	7439-92-1	Lead	22.6	<u>-</u>		-	
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olor Before: olor After:	BROWN	Clari Clari	ty Before: CLE	AR.		' Texture: Artifacts:	MEDIU

FORM I - IN

14/13

CLIENT SAMPLE ID

Solids:	_85.		/L or mg/kg dr			eived: 06	, , ,
	CAS No.	Analyte	Concentration	С	Q	м	
	7439-92-1	Lead	265	_		<u>P_</u>	
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olor Before:	BROWN	Clarit	y Before:	_		Texture:	MEDI
olor After:	YELLOW	Clarit	y After: CLEA	IR_	•	Artifact	

fl 4//3 05101

CLIENT SAMPLE ID

S0016000N1 Lab Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-UT Case No.: 39177 SAS No.: SDG No.: 39177B Lab Code: SWOK___ Matrix (soil/water): WATER Lab Sample ID: 39177.01 Date Received: 06/26/99 Level (low/med): LOW __0.0 % Solids: Concentration Units (ug/L or mg/kg dry weight): UG/L_ CAS No. Analyte Concentration C 0 М P_ IB 7439-92-1 Lead 11.1 B

-	Before: After:	COLORLESS COLORLESS	Clarity Clarity	Before:	CLEAR_ CLEAR_	Texture: Artifacts:	
CLI	nts: ENT_ID=_	SGRBHSO016000N	1				
			FOR	M T - IN			

11/3

CLIENT SAMPLE ID

		*				1	
Name: SOUT	THWEST_LAB_O	F_OK	Contract:CH	2M-U	rr	soo	17000N1
Name: SOUT Lap Code: SWOR Matrix (soil/w Level (low/med % Solids:	C Ca water): WATE i): LOW0.		177 SAS No.	: Lab Dat	Sampl e Rece	SDG N e ID: ived:	No.: 39177B 39177.02 06/26/99
Co	oncentration	Units (ug	/L or mg/kg dr	y we	eight):	UG/L_	-
	CAS No.	Analyte	Concentration	C	Q	м	
	7439-92-1	Lead	13.5	B _		P_ J	IB
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Color Before: Color After:	COLORLESS COLORLESS		ty Before: CLE ty After: CLE	AR_ AR_		Textu: Artifa	
Comments: CLIENT_ID=_	_SGRBHSO0170	00N1	74-74				
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		F	ORM I - IN				ilv

05103

CLIENT SAMPLE ID

		INONGMUIC ,	MIMLISES DAIA	11221	
Lab Name: SOUTI	HWEST LAB O	F OK	Contract:CH	2M-UT	S0018000N1
Lab Name: SOUTH Lab Code: SWOK Matrix (soil/wa Level (low/med) % Solids:	ater): WATE	R	177 SAS No.	Lab Samp	SDG No.: 39177B le ID: 39177.03 eived: 06/26/99
Cox	ngontration	TIME TO COME	/7 /1 1		
CO	dentiation	units (ug	/L or mg/kg dry	y weight)	: UG/L_
	CAS No.	Analyte	Concentration	C Q	M
	7439-92-1	Lead	16.0-	B =	P J IB
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Color Before:		Clari	ty Before: CLE		Texture:
Color After:	COLORLESS	Clari	ty After: CLE	AR_	Artifacts:
Comments: CLIENT_ID=_	SGRBHS00180	00N1			

FORM I - IN

All J

Data Review and Validatio	n Ior:	Metals and	/ 01	Cya	nic	le-	4	ens only		
Project Name & Task:	L	AREDO AFB				I/	V T.	P		
Project # & Case/SDG:	1-	47436.DV.ZZ				39	939	0		
Methods: 🔲 ILM04.0 🕡 51	N-846 (6010B,7000 Series)	ا ۵	7200	· ·			300 series	7 a.	
	FESC	Other:	ب	1200	<i>)</i> 30					<u>M 3000 series</u>
Field QC Samples:		Outer.	-			N	um	ber of Samples:		4 3 kg
7	/ 	/ //						, 		
Reviewed by & Date:	SI	e (lef		- 4	1	//3	3/	2000		
Matrix: Water Soil		Other								
Quality Control	Form	Ţ	-							
Quanty Control	# #	Requirements		/F0.51	_		hec			lags Applied
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	╁)* C			ee comments)	(see comments)
(= 2)		All samples on COC reported	+	JOK TOK	上	No*	Ł	Not provided	누	Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	十	JOK	屵	No*		MYA	누	Flags Applied
	14,	Mercury 28 day HT met	╁	ok ok	十	No*	_	N/A	누	Flags Applied
,	COC	Other metals 160 day HT met	├ ,	ok dok	十	No*	-	N/A	누	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	厅	ОК	T	No*		Not provided	十	Flags Applied Flags Applied
	raw	Linearity method criteria		ОК	Ť	No*	卞	Not provided		1 rags Applied
	2	ICV criteria	1	JOK	Ī	No*		Titoc provided		
Continuing Calibration (CC)		CCV frequency	_	ЮК	T	No*			Т	Flags Applied
	2	CCV critieria	L	JOK		No*				
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)		-юκ	L	No*		see blnk wksht	L	Flags Applied
ICB and CCB		ICB, CCB		ок_		No*		see blnk wksht		
Prep Blank Frequency (PB)	3	1 PB per batch	_	юк		No*				
ICP Interference Check (ICS) MS/MSD or MS/LD	5	Method criteria met	14	OK	Ļ	No*				Flags Applied
WIS/WISD OF WIS/LD	1 1	MS/MSD MS/LD None*	┟┝	OK	누	No*			L	Flags Applied
	! }	Recovery Limits: Lab Meth Precision criteria	┝	OK	누	No*				
Post Spike Samp. Recov.	-	Criteria met	┝	OK	╄	No*				Т
Duplicate Samples (LD)		Criteria met	+	JOK OK	╄	No*		N/A	누	Flags Applied
LCS (BS)		Frequency		OK /	┝	No*	누	N/A	누	Flags Applied
LCS only LCS/LCSD	1 }	Acceptance criteria met		OK	H	No*		N/A	_	Flags Applied
Standard Addition		Criteria met	十	ОК	누	No*	1/2	N/A	_	Flags Applied
ICP Serial Dilution (SD)		Criteria met	十	ОК	Т	No*	Ť	N/A	十	Flags Applied
Internal Standard (IS)		Internal Standards used	T	ОК		No*	一	N/A		у подотфриса
Sample Evaluations (SAM)	1	All hits within cal. Range	T	ОК		No*	T	All ND	L	Flags Applied
	1	Total > Dissolved		ОК		No*		N/A		Hags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup		ОК		No*		N/A	I	Flags Applied
	ods. All	requirement items may not apply to every	ana	lytical	mei	hod.				
Case Narrative Comments:										
		NO EVALOHENS	-	1/	10	M	-/	7		
unter sound to	- 0	(de la la la la la la la la la la la la la		_~	_	<u> </u>				
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Metal&CN

CLIENT	SAMPLE	TD
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		INORGANIC	ANALYSES DATA	SH	EET	
atrix (soil/wevel (low/med	vater): SOIL 1): LOW84.	ise No.: 39 - 5	Contract:CH 390 SAS No.	: D	ab Samp ate Rec	016000N1 SDG No.: 39390- le ID: 39390.01 eived: 07/13/99
Co	ncentration	Units (ug	/L or mg/kg dr	У	weight)	: MG/KG
	CAS No.	Analyte	Concentration	T	1	М
	7439-92-1	Lead	17.1	B		<u>P_</u>
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lor Before: lor After:	BROWN	Clari Clari	ty Before:		_	Texture: MEDIUM
mments: CLIENT_ID_=	SGRBHS001600	00NI				
		17/	DM T TN			

FORM I - IM

184/13/1001 05107

CLIENT SAMPLE ID

		INONGANIC	ANALYSES DATA	SUEE	1	
b Name: SOUT	HWEST_LAB_O	F_OK	Contract:CH	2M-C	KC	017000N1
trix (soil/water) trix (soil/water) (low/med Solids:	areri: Soir	······································	390 SAS NO.	Lab	Samp	SDG No.: 39390- le ID: 39390.02 eived: 07/13/99
Cor	ncentration	Units (ug	/L or mg/kg dry	y we	ight)	: MG/KG
	CAS No.	Analyte	Concentration	С	Q	М
	7439-92-1	Lead	21.7	₽-		P J C8 2/2/2000
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lor Before: lor After:	BROWNYELLOW	Clari Clari	ty Before:			Texture: MEDIU Artifacts:
mments: CLIENT_ID_=	SGRBHSO0170	00N1				

FORM I - IN

1/13

CLI	ENT	SAMPLE	TD

		DIDITI DAI	ARDE ID				
Name: SOUTLAB Code: SWO! Matrix (soil/ Level (low/med) % Solids:	Marchi: SOTT	J	Contract:CH 390 SAS No.	Lab Sa	ample	018000N: DG No.: : ID: 39390 ed: 07/1:	39390_
Co	oncentration	Units (ug	/L or mg/kg dr	y weigh	nt): M	G/KG	
	CAS No.	Analyte	Concentration	c Q	М		
	7439-92-1	Lead	76.5		$ _{\overline{P}_{-}}$		
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						water the state of	
Sa.							
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Color Before: Color After:		Clari Clari	ty Before: ty After:			. xture: tifacts:	MEDIUM
Comments: CLIENT ID =	SGRBHS00180	00N1					
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05109

USACE Data Comparability Report





Page 9 of 20

Project Report: 102380

Client:

Organic Quality Control/Quality Assurance for Project 102380

PA	Method	9270C	Instrument T	une 06	5/04/199	9	1		
1 a s	s		Reference Mass	Min Abu	undance	Max	Abundance	Result	Status
DET	PP Mass	51	198	30.	. 0		60.0	59.1	PASS
DET	PP Mass	68	69		0		2.00	0.0	PASS
DET	PP Mass	69	198		0		100	62.8	PASS
DET	PP Mass	70	69		0		2.00	0.0	PASS
)FT	PP Mass	127	198	40.	0		60.0	51.2	PASS
)FT	PP Mass	197	198		0		1.00	0.0	PASS
)FT	PP Mass	198	198	10	00		100	100.0	PASS
FT	PP Mass	199	198	5.0	0		9.00	6.9	PASS
)FT	PP Mass	275	198	10.	0		30.0	21.3	PASS
FT	PP Mass	365	198	1.0	0		100	2.9	PASS
FT	PP Mass	441	443		0		100	81.5	PASS
FT	PP Mass	442	198	40.	0		100	59.7	PASS
FT	PP Mass	443	442	17.	0		23.0	19.2	PASS

Instrument Calibration Che	ck 06/04/1999	1	
om (Max %Rel. Std.	<pre>%Deviation</pre>	Status
ice is ane	30.0	-4.2	PASS
enzo(a)pyrene	30.0	-3.0	PASS
-Chloro-3-methylphenol	30.0	-8.0	PASS
,4-Dichlorobenzene	30.0	-2.7	PASS
,4-Dichlorophenol	30.0	-3.9	PASS
i-n-octylphthalate	30.0	-17.0	PASS
luoranthene	30.0	3.6	PASS
exachlorobutadiene	30.0	-21.0	PASS
-Nitrophenol	30.0	-0.8	PASS
-Nitrosodiphenylamine (as DPA	30.0	-7.7	PASS
entachlorophenol	30.0	0.2	PASS
nenol	30.0	0.4	PASS
,4,6-Trichlorophenol	30.0	-2.4	PASS

PA Method 8270C	Instrume	ent System	n Perform	ance Check	06/04	/1999	1
pound	Min	Response	Factor	Response	Factor	Status	
.4-Dinitrophenol		. 05	00	0.11	. 4	PASS	
-xachlorocyclopent	tadiene	. 05	00	0.26	9	PASS	
Nitrophenol		. 05	00	0.28	2	PASS	
Nitrosodi-n-propy	ylamine	.05	00	0.90	17	PASS	
A Method 8151A	Blank	06/02/19	99 1				

A Method 8151A Blank 06/02/1999

mpound Result

4,5-TP (Silvex) ND
4 Dichlorophenoxyacetic acid ND

IPLETE SERVICE LAB

8151A Standard 06/02/1999 1

Concentration Result *Difference





05007





8101 Cameron Rd #306 - Austin, TX 78754

512/821-0045 FAX 512/821-0237

Page 10 of 20

Project Report:

102380

Client:

Organic Quality Control/Quality Assurance for Project 102380

1,5-TP (Silvex)	150	157	4.7
Dichlorophenoxyacetic acid	150	147	-2.0
A Method 8081A Blank 06/0	2/1999	1	
apound	Result		
irin	ND		
<pre>>ha-BHC(hexachlorocyclohexane)</pre>	ND		
:a-BHC(hexachlorocyclohexane)	ND		
.ta-BHC(hexachlorocyclohexane)	ND		
wma-BHC (Lindane)	ND		
.ordane	ND		
DDD	ИD		
-DDE	ND		
-DDT	ND		
·ldrin	ND		
osulfan I (alpha)	ND		
osulfan II (beta)	ND		
osulfan sulfate	ND		
rin	ИD		
rin aldehyde	ND		
tachlor	ND		
tachlor epoxide	ND		
aphene	ND		
noxychlor	ND		
Method 8081A Standard 06	/02/1999	1	

Method 8081A Standard 0	6/02/1999	1	
cound Concent	ration	Result	%Difference
rin	100	98.5	-1.5
na-BHC(hexachlorocyclohexane)	100	99.6	-0.40
1-BHC(hexachlorocyclohexane)	100	91.1	-8.9
<pre>ta-BHC(hexachlorocyclohexane)</pre>	100	99.4	-0.60
na-BHC (Lindane)	100	97.5	-2.5
-DDD	100	97.1	-2.9
-DDE	100	99.6	-0.40
-DDT	100	96.7	-3.3
ldrin	100	99.7	-0.30
sulfan I (alpha)	100	98.6	-1.4
sulfan II (beta)	100	95.9	-4.1
sulfan sulfate	100	96.5	-3.5
cin .	100	99.3	-0.70
fin aldehyde	100	94.4	-5.6
achlor	100	98.2	-1.8
achlor epoxide	100	98.7	-1.3
hoxychlor	100	91.5	-8.5

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Project Report: 102380

Client:

SET Quality Control/Quality Assurance for Project 102380

	Flash Point (Reg. Limit 140.0 F)			(Analyzed: 05/28/1999 1515 PRE Verified: 06/02/1999 09:03 NGT)			
Sample	Туре	Result	Value	Unit	Percent		
•	Standa	ard 84	80	Degrees F	5.0		
409 123	Duplic	ate 132	129	Degrees F	1.5		
	TCLP Silver (Reg.	Limit 5.0)		(Analyzed: 06/08/199	9 1139 WOB Verified: 06/08/1999	12:17 WJP)	
Sample	Туре	Result	Valu e	Unit	Percent		
	Standa	ard 1.91	2.00	ppm	-4.5		
	Standa	ard 0.962	1.00	ppm	-3.8		
	Standa	ard 0.946	1.00	ppm	-5.4		
09349	Direct	SPK	101	ppm	101		
10934 9	Direct	SPK	98	ppm	98		
	TCLP Silver (Reg.	Limit 5.0)		(Analyzed: 06/02/199	9 1300 WOB Verified: 06/03/1999	14:50 SAH)	
Sample	Туре	Result	Value	Unit	Percent		
•	Standa	ard 0.0993	0.100	ppm	-0.7		
	Standa	ard 0.310	0.300	ppm	3.3		
	Standa	ard 0.308	0.300	ppm	2.7		
	Standa	ırd 0.304	0.300	ppm	1.3		
	Standa	ird 0.301	0.300	ppm	0.3		
	Standa	ord 0.306	0.300	ppm	2.0		
	Standa	rd 0.297	0.300	ppm	-1.0		
	Standa	ord 0.300	0.300	ppm	0.0		
	Standa	rd 0.102	0.100	ppm	2.0		
	Standa	rd 0.321	0.300	ppm	7.0		
	Standa	rd 0.321	0.300	ppm	7.0		
	Standa	rd 0.319	0.300	ppm	6.3		
	Standa	rd 0.319	0.300	ppm	6.3		
	Standa	rd 0.318	0.300	ppm	6.0		
	Standa	rd 0.321	0.300	ppm	7.0		
	LCS	0.0616	0.100	ppm	-38.4		
	LCS	0.0155	0.0200	ppm	-22.5		
	LCS	0.0150	0.0200	ppm	-25.0		
	Blank	<0.0100		ppm			
	Blank	<0.0500		ppm			
	Blank	<0.0500		ppm			
093 16	Spike		0.100	ppm	71		
0 933 3	Spike		0.100	ppm	66		
3 933 3	Spike		0.100	ppm	64		
29335	Spike		0.100	ppm	6 6		
.ae	Spike		0.100	ppm	67		
ንያ ኤ	Spike		0.100	ppm	67		
.∕. ∋9350	Spike		0.100	ppm	67	05009	







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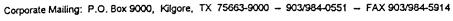
Project Report: 102380

Client:

SET Quality Control/Quality Assurance for Project 102380

	TCLP Silver (Reg. Limit 5.0)			(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)			
ηρίe	Туре	Result	Value	Unit	Percent		
350	Spíke		0.100	ppm	61		
374	Spike		0.0200	ppm	64		
374	Spike		0.0200	ppm	62		
375	Spike		0.100	ppm	61		
376	Spike		0.100	ppm	62		
377	Spike		0.100	ppm	63		
378	Spike		0.100	ppm	63		
420	Spike		0.100	ppm	46		
422	Spike		0.100	ppm	57		
561	Spike		0.100	ppm	59		
	TCLP Arsenic (Reg. Lir	nit 5.0)		(Analyzed: 06/02/19	999 1300 WOB Verified: 06/03/1999 14:50 SAH)		
ıple	Type	Result	Value	Unit	Percent		
•	Standard	0.0995	0.100	ppm	-0.5		
	Standard	0.309	0.300	ppm	3.0		
	Standard	0.310	0.300	ppm	3.3		
	Standard	0.308	0.300	ppm	2.7		
	Standard	0.295	0.300	ppm	-1.7		
	Standard	0.321	0.300	ppm	7.0		
	Standard	0.320	0.300	ppm	6.7		
	Standard	0.314	0.300	ppm	4.7		
	Standard	0.316	0.300	ppm	5.3		
	Standard	0.317	0.300	ppm	5.7		
	Standard	0.310	0.300	ppm	3.3		
	Standard	0.306	0.300	ppm	2.0		
	Standard	0.315	0.300	ppm	5.0		
	LCS	0.482	0.500	ppm	-3.6		
	LCS	0.0941	0.100	ppm	-5.9		
	Blank	<0.100		ppm	i.		
	Blank	<0.500		ppm			
316	Spike		0.500	ppm	102		
333	Spike		0.500	ppm	100		
334	Spike		0.500	ppm	100		
335	Spike		0.500	ppm	104		
349	Spike		0.500	ppm	99		
349	Spike		0.500	ppm	99		
350	Spike		0.500	ppm	99		
350	Spike		0.500	ppm	95		
374	Spike		0.100	ppm	91		
374	Spike		0.100	ppm	88		





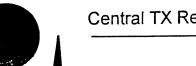
Corporate Shipping: 2600 Dudley Rd., Kilgore, TX 75662 - http://www.ana-lab.com

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Client:

SET Quality Control/Quality Assurance for Project 102380

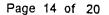
	TCLP Arsenic (Reg. Limit 5.0)			(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)				
Sam ple	Type	Result	Val ue	Unit	Percent			
.09 375	Spike		0.500	ppm	102			
:093 76	Spike		0.500	ppm	102			
09377	Spike		0.500	ppm	101			
09 378	Spike		0.500	ppm	103			
	TCLP Barium (Reg. Lim	it 100.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 0	6/03/1999 14:50 SAH)		
:am ple	Туре	Result	Value	Unit	Percent			
	Standard	0.0993	0.100	ppm	-0.7			
	Standard	0.309	0.300	ppm	3.0			
	Standard	0.310	0.300	ppm	3.3			
	Standard	0.304	0.300	ppm	1.3			
	Standard	0.296	0.300	ppm	-1.3			
	Standard	0.312	0.300	ppm	4.0			
	Standard	0.304	0.300	ppm	1.3			
	Standard	0.311	0.300	ppm	3.7			
	Standard	0.103	0.100	ppm	3.0			
•	Standard	0.320	0.300	ppm	6.7			
	Standard	0.318	0.300	ppm	6.0			
	Standard	0.318	0.300	ppm	6.0			
	Standard	0.317	0.300	ppm	5.7			
	Standard	0.315	0.300	p pm	5.0			
	Standard	0.318	0.300	ppm	6.0			
	LCS	0.433	0.500	ppm	-13.4			
	LCS	0.106	0.100	ppm	6.0			
	LCS	0.105	0.100	ppm	5.0			
	Blank	<0.0100		ppm				
	Blank	<0.0500		ppm				
	Blank	0.086		ppm				
9316	Spike		0.500	ppm	101			
9333	Spike		0.500	ppm	94			
<i>1</i> 9334	Spike		0.500	ppm	97			
1 93 35	Spike		0.500	ppm	96			
9349	Spike		0.500	ppm	95			
3 3 49	Spike		0.500	ppm	9 6			
9350	Spike		0.500	ppm	97			
9350	Spike		0.500	ppm	92			
3374	Spike		0.100	ppm	80			
9374	Spike		0.100	ppm	58			
93 7 🖟	Spike		0.500	ppm	95			
93	Spike		0.500	ppm	95	A = A = 4		
						05011		





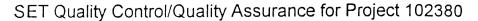
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Project Report: 102380

Client:



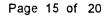
	TCLP Barium (Reg. Lim	nit 100.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
πρle	Туре	Result	Value	Unit	Percent
3377	Spike		0.500	ppm	95
37 8	Spike		0.500	ppm	96
)420	Spike		0.500	ppm	98
1422	Spike		0.500	ppm	96
∂ 5 61	Spike		0.500	ppm	99
	TCLP Cadmium (Reg. L	imit 1 (1)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
nnlo	Type	Result	Value	Unit	Percent
πple	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spik e		0.250	ppm	96
334	Spike		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spik e		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95





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Project Report: 102380

Client:

SET Quality Control/Quality Assurance for Project 102380

	TCLP Cadmium (Reg. Li	mit 1.0)		(Analyzed: 06/02/19	999 1300 WOB Verified: 06/03/1999	14:50 SAH)
Sample	Туре	Result	Value	Unit	Percent	
4093 76	Spike		0.250	ppm	80	
109377	Spike		0.250	ppm	94	
1093 78	Spike		0.250	ppm	96	
4094 20	Spike		0.250	ppm	93	
4094 22	Spike		0.250	ppm	95	
1095 61	Spike		0.250	ppm	97	
	TCLP Chromium (Reg. L	imit 5.0)		(Analyzed: 06/02/19	999 1300 WOB Verified: 06/03/1999 1	14:50 SAH)
Sample	Type	Result	Value	Unit	Percent	
	Standard	0.0998	0.100	ppm	-0.2	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.310	0.300	ppm	3 .3	
	Standard	0.300	0.300	,ppm	0.0	
ŀ	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.314	0.300	ppm	4.7	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.318	0.300	ppm	6.0	
	LCS	0.485	0.500	ppm	-3.0	
	LCS	0.0980	0.100	ppm	-2.0	
	Blank	<0.0200		ppm		
	Blank	<0.100		ppm		
093 16	Spike		0.500	ppm	103	
093 33	Spike		0.500	ppm	98	
093 334	Spike		0.500	ppm	98	
09334	Spike		0.500	ppm	102	
	Spike		0.500	ppm	98	
09349	Spike		0.500	ppm	98	
09349	Spike		0,500	ppm	98	
0935 0	Spike		0.500	ppm	92	
)9350 >2374	Spike		0.100	ppm	100	
9374	Spike		0,100	ppm	86	
)9374)937 <i>E</i>	Spike		0.500	ppm	103	
09375	Spike		0.500	ppm	98	
∋9376 ∞′	Spike		0.500	ppm	97	
.ar .a.	Spike Spike		0.500	ppm	100	050

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Project Report: 102380

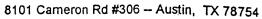
Client:

	TCLP Mercury (Reg. L	imit 0.2)		(Analyzed: 06/02/1	1999 1412 WOB Verified: 06/03/1999 12:14 NGT)
pie	Туре	Result	Value	Unit	Percent
·	Standard	23.7	25.0	ррь	-5.2
	Standard	4.87	5.00	ppb	-2.6
	Standard	4.80	5.00	ppb	-4.0
	Standard	4.83	5.00	ppb	-3.4
	Standard	4.75	5.00	ppb	-5.0
	LCS	9.05	10.0	ppb	-9.5
	LCS	10.5	10.0	ppb	5.0
	Blank	<0.10		ppb	
	Blank	<0.15		ppb	
49	Spike		10.0	ppb	97
78	Spike		10.0	ppb	101
78	Spike		10.0	ppb	93
20	Spike		10.0	ppb	94
22	Spike		10.0	ppb	100
61	Spike		10.0	ppb	91
52	Spike		10.0	ppb	76
52	Spike		10.0	ppb	80
	Standard	24.7	25.0	ppb	-1.2
	Standard	5.13	5.00	ppb	2.6
	Standard	5.28	5.00	ppb	5.6
	Standard	5.23	5.00	ppb	4.6
	Standard	5.08	5.00	ppb	1.6
	LCS	9.38	10.0	ppb	-6.2
	Blank	<0.15		ppb	
34	Spike		10.0	ppb	96
1 9	Spike		10.0	ppb	100
50	Spike		10.0	ppb	102
50	Spike		10.0	ppb	101
74	Spike		10.0	ppb	52
7	Spike		10.0	ppb	95
52	Spike		10.0	ppb	95
52	Spike		10.0	ppb	93
12	Spike		10.0	ppb	102
12	Spike		10.0	ppb	97
	TCLP Lead (Reg. Limit	5.0)		(Analyzed: 06/02/19	99 1300 WOB Verified: 06/03/1999 14:50 SAH)
)le	Type	Result	Value	Unit	Percent
	Standard	0.0986	0.100	ppm	-1.4
	Standard	0.310	0.300	ppm	3.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.304	0.300	ppm	1.3





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Project Report: 102380

Client:

SET Quality Control/Quality Assurance for Project 102380

	TCLP Lead (Reg. Limit	5.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sample	Туре	Result	Value	Unit	Percent	
·	Standard	0.317	0.300	ppm	5.7	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.315	0.300	ppm	5.0	
	Standard	0.103	0.100	ppm	3.0	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.323	0.300	ppm	7.7	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.323	0.300	ppm	7.7	
	LCS	0.449	0.500	ppm	-10.2	
	LCS	0.102	0.100	ppm	2.0	
	LCS	0.101	0.100	ppm	1.0	
	Blank	<0.0500		ppm		
	Blank	<0.250		ppm		
	Blank	<0.250		ppm		
09316	Spike		0.500	ppm	105	
)9333	Spike		0.500	ppm	102	
)93 34	Spike		0.500	ppm	103	
)93 35	Spike		0.500	ppm	105	
)93 49	Spike		0.500	ppm	103	
)93 49	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	99	
)9 374	Spike		0.100	ppm	134	
)9 374	Spike		0.100	ppm	84	
9375	Spike		0.500	ppm	106	
93 76	Spike		0.500	ppm	102	
9377	Spike		0.500	ppm	103	
19378	Spike		0.500	ppm	103	
19420	Spike		0.500	ppm	104	
9422	Spike		0.500	ppm	102	
9561	Spike		0.500	ppm	104	
	TCLP Selenium (Reg. Li	mit 1.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
	Type	Result	Value	Unit	Percent	
mple	Standard	0.0980	0.100	ppm	-2.0	
	Standard	0.302	0.300	ppm	0.7	
,**	Standard	0.311	0.300	ppm	3.7	
	Standard	0.303	0.300	ppm	4.0	T 0 1 F
					U	5015







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Project Report: 102380

Client:

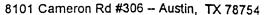
SET Quality Control/Quality Assurance for Project 102380

	TCLP Selenium (Reg. I	_imit 1.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)
nple	Type	Result	Value	Unit	Percent
•	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
316	Spike		0.500	ppm	102
333	Spike	•	0.500	ppm	98
334	Spike		0.500	ppm	100
35	Spike		0.500	ppm	104
49	Spike		0.500	ppm	98
49	Spike		0.500	ppm	100
50	Spike		0.500	ppm	98
50	Spike		0.500	ppm	96
74	Spike		0.100	ppm	92
74	Spike		0.100	ppm	92
75	Spike		0.500	ppm	102
76	Spike		0.500	ppm	99
- 77	Spike		0.500	ppm	99
78	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107
	Reactivity Cyanide (RL 2	250)		(Analyzed: 05/28/19	999 1500 RSV Verified: 06/02/1999 11:28 SAH)
ple	Type	Result	Value	Unit	Percent
ριο	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3





MPLETE SERVICE LAB





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Client:

SET Quality Control/Quality Assurance for Project 102380

	Reactivity Cy	yanide (RL	250)		(Analyzed: 05/28/199	99 1500 RSV Verified: 06/02/1999 11:28 SAH)
Sample	•	Туре	Result	Value	Unit	Percent
·		Blank	<0.005		ppm	
1093 49		Duplicate	ND	ND	mg/kg	0.0
	Reactivity Su	ulfide (RL 5	(00)		(Analyzed: 05/28/199	99 1000 RSV Verified: 05/28/1999 1654 SAH)
Sample	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Туре	Result	Value	Unit	Percent
- Lings		Standard	2.01	2.0	ppm	0.5
		Standard	4.99	5.0	ppm	-0.2
		Blank	<0.05		ppm	
ю93 49		Duplicate	ND	ND	mg/kg	0.0
	Total Petrole	um Hydrod	arbon		(Analyzed: 06/09/199	99 1730 GDG Verified: 06/10/1999 16:25 SAH)
ample		Туре	Result	Value	Unit	Percent
09734		Standard	214	200	mg/L	7.0
09734		Standard	214	200	mg/L	7.0
		Blank	1.8		mg/L	
\		Blank	<10		mg/L	
,		Blank	<10		mg/L	
10255		Duplicate	3400	4200	mg/kg	14.5
08702		Standard	211	200	mg/L	5.5
387 02		Standard	204	200	mg/L	2.0
		Blank	3.4		mg/L	
		Blank	<10		mg/L	
		Blank	<10		mg/L	
387 02		Duplicate	1200	1100	mg/L	5.7
)93 80		Duplicate	15000	18000	mg/kg	12.5
	Laboratory p	Н			(Analyzed: 05/28/199	9 1630 PRE Verified: 06/01/1999 17:27 NGT)
ample		Туре	Result	Va lue	Unit	Percent
		Standard	7.98	8.00	SU	-0.3
		Standard	7.96	8.00	SU	-0.5
		Standard	10.04	10.00	SU	0.4
	•	Standard	6.95	7.00	SU	-0.7
)9349		Duplicate	7.4	7.4	su	0.0

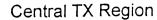
L is the Minimum Analytical Level or Minimum Quantitation level (MQL). The MAL takes into account the istrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL) as well as my dilutions or concentrations associated with this sample. Our analytical result must be above this MAL before report a value for any parameter. Otherwise, we report ND (Not Detected above MAL) or "<" (less than) the antitation limit listed in the MAL column. CAS is Chemical Abstract Service Registry Number.

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Client:

ertify that the results were generated using the above specified methods.

H. Whiteside, Ph.D., President





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Appendix C
Data Validation Report,
Sample Analytical Results,
and USACE Data Comparability Report

Data Validation Report

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1. Introduction

CH2M HILL was retained by the United States Army Corps of Engineers (USACE), Tulsa District, to perform a Site Investigation of the Shotgun Range (SGR) Site at the former Laredo Air Force Base (LAFB) located in Laredo, Texas.

Samples were collected by CH2M HILL Personnel, and shipped to Southwest Laboratory of Oklahoma, located in Broken Arrow, Oklahoma, for analysis. The requested analyses are listed in Section 4, Chain of Custody Synopsis.

This report covers the samples received as Laboratory Sample Delivery Groups (SDGs): 38707, 38708, 39086, 39177, and 39390.

2. Data Validation/Data Quality Review Process

The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

Before the analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reduced and the resulting data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package cover letter and case narrative.

All of the data packages were reviewed by the project chemists using the process outlined in such guidance documents as the Environmental Protection Agency (EPA) National Functional Guidelines for Evaluating Inorganic Analyses (July 1994) and National Functional Guidelines for Organic Data Review (July 1994). Engineering Manual 200-1-6 (EM 200-1-6) US Army Corps of Engineers Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste (HTRW) Projects (October 1997) was consulted as well.

The data validation and review process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes. "Did it meet the Data Quality Objectives (DQOs) as defined in the workplan?" Areas of review included holding-time compliance, surrogate recoveries, matrix spiked sample results, method blank results, initial and continuing calibrations, laboratory control samples, internal standard response and retention times, instrument tuning criteria,

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laboratory duplicate sample results, and field sample duplicate results. A data review worksheet was completed for each of these data packages.

Sample results that were not within the acceptance limits were appended with a qualifying flag, which consists of a single- or double-letter abbreviation that indicated a potential problem with the data. Although the qualifying flags originate during the data review and validation processes, they are included in the data summary tables deliverable so that the data will not be used indiscriminately. The following flags were used in this text:

- U Undetected. Samples were analyzed for this analyte, but it was not detected above the method detection limit (MDL) or instrument detection limit (IDL).
- UJ Detection limit estimated. Samples were analyzed for this analyte, but the results were qualified as not detected. The result is estimated.
- J Estimated. The analyte was present, but the reported value may not be accurate or precise.
- R Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)
- = Detected. Target parameter detected at the concentration reported.

Numerical sample results that were greater than the method detection limit but less than the Reporting Limit (RL) were qualified with a "J" for estimated.

Additionally, flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified EPA protocols or is of a technical advisory nature per sample matrix or method limitation.

Once the data validation review and processes were completed, the entire data set was reviewed for chemical compound frequencies of detection, dilution factors that might affect data usability, and patterns of target compounds distribution. The data set was also evaluated to identify potential data limitations, uncertainties, or both in the analytical results.

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The following sections detail any noted deviations. Tables summarizing data qualification flags, if any, are provided at the end of this report.

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DV_LAREDO_SGR_SITE_FINAL DOC C-4

3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

3.1 Common Acronyms and Abbreviations

COC Chain-of-Custody

DoD Department of Defense

DQO Data Quality Objective

FD Field Duplicate

EB Equipment Blank

EM Engineering Manual

EPA Environmental Protection Agency

HTRW Hazardous, Toxic, Radioactive Waste

ICP Inductively Coupled Plasma

IDL Instrument Detection Limit

IWTP Industrial Waste Treatment Plant

LAFB Laredo Air Force Base

LB Laboratory Blank

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MDL Method Detection Limit

MS/MSD Matrix Spike/Matrix Spike Duplicate

QA/QC Quality Assurance/Quality Control

RL Reporting Limit

RPD Relative Percent Difference

SGR Shotgun Range

TB Trip Blank

USACE United States Army Corps of Engineers

3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's \rightarrow J's)
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

4. Chain of Custody Synopsis

	Chemical A	Analytical Me	thods											
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010									
	Samples Collected on 21 May 1999													
001000N1	so	0836	N	X	X ¹									
001002N1	SO	0842	N	X										
002000N1	SO	0903	N	X	X ¹									
002002N1	SO	0914	N	X										
003000N1	SO	0934	N	X										
003002N1	SO	0940	N	X										
004000N1	SO	0958	N	X	X ¹									
004002N1	SO	1004	N	X										
005000N1	SO	1022	N	X	X ¹									
005002N1	SO	1030	N	X										
006000N1	so	1128	N	X										
006000FD1	SO	1128	FD	X	X ¹									
006002N1	SO	1135	N	X										
006002FD1	SO	1135	FD	X	and author control or an extreme to the supplement of the supplement of the supplement of the supplement of the									
007000N1	so	1155	N	X										
007002N1	so	1200	N	X										
008000N1	so	1358	N	X										
008002N1	so	1415	N	X										
009000N1	so	1435	N	X										
009002N1	SO	1500	N	X	and the second s									
010000N1	SO	1515	N	x										
010000FD1	SO	1515	FD	X										
010002N1	so	1522	N	X										
011000N1	SO	1538	N	X										
011002N1	so	1545	N	X										
012000N1	so	1605	N	X										

	Chemical	Analytical M	lethods		
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
012002N1	so	1610	N	Х	
SGRBHWQ012000EB1	WQ	1600	EB	X	on hand armed the encontrolled manufacture and the encountries of the
	Samples Col	lected on 22	May 1999		
013000N1	so	0820	N	Х	
013002N1	so	0830	N	X	
014000N1	so	0845	N	X	
014002N1	SO	0850	N	X	- Caralanda - Cara
015000N1	so	0922	N	X	
015002N1	so	0930	N	X	
SGRBHWQ01500EB1	WQ	0900	EB	X	The state of the s
	Samples Coll	ected on 24	June 1999		
016000N1	SO	1545	N	X ²	X
017000N1	SO	1615	N	X ²	X
018000N1	SO	1645	N	X ²	X
018000MS1	SO	1645	FD	X ²	X

Notes: X – Southwest Laboratory of Oklahoma

FD - Field Duplicate

EB - Equipment Blank

X¹ - Sample re-logged into the laboratory as SDG 39086.

 $[\]chi^2$ - Sample re-logged into the laboratory as SDG 39390.

5. Sample Cross Reference Tables

5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHS0001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHS0002002N1	N
38707.05	SGRBHS0003000N1	N
38707.06	SGRBHS0003002N1	N
38707.07	SGRBHS0004000N1	N
38707.08	SGRBHSO004002N1	N
38707.09	SGRBHSO005000N1	N
38707.10	SGRBHSO005002N1	N
38707.11	SGRBHSO006000N1	Ν
38707.12	SGRBHS0006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHSO006002FD1	FD
38707.15	SGRBHS0007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHSO010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHSO010002N1	N
38708.04	SGRBHS0011000N1	N
38708.05	SGRBHS0011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHS0012000N1	N

Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHS0012002N1	N
38708.09	SGRBHS0013000N1	N
38708.10	SGRBHSO013002N1	Ν
38708.11	SGRBHSO014000N1	N
38708.12	SGRBHSO014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHSO015000N1	N
38708.15	SGRBHS0015002N1	N
39086.01	SGRBHS0002000N1	N
39086.02	SGRBHS0004000N1	N
39086.03	SGRBHSO005000N1	N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	N
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHS0017000N1	N
39177.03	SGRBHS0018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHS0016000N1	N
39390.02	SGRBHSO017000N1	N
39390.03	SGRBHS0018000N1	N
39390.04	SGRBHSO018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSO001000N1	38707.01	. N
SGRBHSO001002N1	38707.02	N
SGRBHSO002000N1	38707.03	N
SGRBHSO002002N1	38707.04	N
SGRBHSO003000N1	3 8707.05	N
SGRBHSO003002N1	38707.06	N
SGRBHSO004000N1	38707.07	N
SGRBHS0004002N1	38707.08	N
SGRBHSO005000N1	38707.09	N
SGRBHS0005002N1	38707.10	N
SGRBHSO006000N1	38707.11	N
SGRBHSO006000FD1	38707.12	FD
SGRBHSO006002N1	38707.13	N
SGRBHSO006002FD1	38707.14	FD
SGRBHS0007000N1	38707.15	N
SGRBHSO007002N1	38707.16	N
SGRBHS0008000N1	38707.17	N
SGRBHS0008002N1	38707.18	N
SGRBHS0009000N1	38707.19	N
SGRBHSO010000N1	38707.20	N
MS from SGRBHSO010000N1	38707.21	MS
MSD from SGRBHSO010000N1	38707.22	MSD
SGRBHSO009002N1	38708.01	N
SGRBHSO010000FD1	38708.02	FD
SGRBHS0010002N1	38708.03	N
SGRBHSO011000N1	38708.04	N
SGRBHS0011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSO012000N1	38708.07	N
SGRBHS0012002N1	38708.08	N
SGRBHS0013000N1	38708.09	N
SGRBHSO013002N1	38708.10	N

Sample ID	Lab Sample ID	Sample Type
SGRBHS0014000N1	38708.11	N
SGRBHS0014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHS0015000N1	38708.14	N
SGRBHS0015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHS0004000N1	39086.02	N
SGRBHS0005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHS0017000N1	39177.02	N
SGRBHS0018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHSO016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The !aboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

6. Laredo Air Force Base – Site Investigation -SGR Site

6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

• The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

• The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

 Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	Α

7. Quality Assurance Summary Table

		Holding Time/Calibrations/ Sample Condition	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: OK	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: 12.6 %D - Flag "J"
		Surrogate Recoveries/Internal Standards/Method Blanks	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Surrogate Recoveries: NA Internal Standards: NA Method Blank: CCB - PB = 2.3 ug/L - no Flags
ssurance control Limits	Shotgun Ranges	LCS/LCSD Recoveries/RPD	LCS: OK	LCS: OK
Quality Control/Quality Assurance Results Outside of Quality Control Limits	Former Laredo Air Force Base Shotgun Ranges	MS/MSD Recoveries/RPD/Sample Duplicate RPD	MS/MSD Recoveries/RPD: All OK Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK
		Associated Samples	SGRBHSO001000N1 SGRBHSO001002N1 SGRBHSO002000N1 SGRBHSO002002N1 SGRBHSO003002N1 SGRBHSO004000N1 SGRBHSO004000N1 SGRBHSO00500N1 SGRBHSO00500N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00700N1 SGRBHSO00700N1 SGRBHSO00800N1 SGRBHSO00800N1 SGRBHSO00800N1 SGRBHSO00800N1 SGRBHSO00800N1	SGRBHSO009002N1 SGRBHSO01000FD1 SGRBHSO010002N1 SGRBHSO011000N1 SGRBHSO012000EB1 SGRBHSO012000EB1
		Analysis/Batch	Lead / SDG 38707	Lead / SDG 38708

65039

Time/Calibrations/ Sample Condition

Holding

Recoveries/Internal Standards/Method

Blanks

LCS/LCSD Recoveries/RPD

Recoveries/RPD/Sample

MS/MSD

Duplicate RPD

Associated Samples

Analysis/Batch

SGRBHWQ015000EB1

SGRBHS0015000N1

SGRBHS0015002N1

SGRBHSO013002N1 SGRBHSO014000N1 SGRBHSO014002N1

SGRBHS0013000N1

SGRBHS0012002N1

Surrogate

Former Laredo Air Force Base Shotgun Ranges

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Sample Analytical Results

	1	DELO AED	IWTP		
Project Name & Task:		AREDO AFB			
Project # & Case/SDG:	-	47436.DV.ZZ 38707			
Methods: ILM04.0 SW	-846 (6	010B,7000 Series)	200 series 300 series	SM 3000 series	
Program: AFCEE NFI	EȘC	Other:	Number of Samples:	22 total	
Field QC Samples:///	12+	13/14-FDup, 20/211	22-NAY/M5/M5/		
	le		4/13/2000		
□ w [76:3		Other		•	
Matrix: Water Soil		Otte			
Quality Control	Form	Requirements	Check	Flags Applied	
Quanty Control	#	requirement	(If No* checked, see comments)	(see comments	
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	4oK □ No* □ Not provided	Flags Applie	
		All samples on COC reported	GOK No*	Flags Applie	
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	OK No* LANTA	Flags Applie	
-	14,	Mercury 28 day HT met	OK No* LANTA	Flags Applie	
	COC	Other metals 160 day HT met	OK No* N/A	Flags Appli	
Initial Calibration (IC)	14	Min. initial # of levels per method	OK No* 4 Not provided	Flags Appli	
	raw	Linearity method criteria	OK No* ANot provided		
	2	ICV criteria	OK No*		
Continuing Calibration (CC)	14	CCV frequency	4 OK	Flags Appli	
	2	CCV critieria		t Flags Appli	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	COK		
ICB and CCB	3	ICB, CCB	OK No* see blnk wksh	딕	
Prep Blank Frequency (PB)	3	1 PB per batch	140K No*	Flags Appl	
ICP Interference Check (ICS)	5	Method criteria met MS/MSD MS/LD None*	Gok	Flags Appl	
MS/MSD or MS/LD	5	Recovery Limits: Lab Meth	GOK No*	_ Conday Appl	
	6	Precision criteria	OK No*	-	
Post Spike Samp. Recov.	5	Criteria met	OK No* N/A	Flags Appl	
Duplicate Samples (LD)	6	Criteria met	LOK No* N/A	Flags Appl	
LCS (BS)	7	Frequency	COK No* N/A	Flags Appl	
ALCS only LCS/LCSD		Acceptance criteria met	FOK No*	1	
Standard Addition	8	Criteria met	OK No* N/A	Flags App	
ICP Serial Dilution (SD)	9	Criteria met	✓ VK No* N/A	Flags App	
Internal Standard (IS)		Internal Standards used	OK No* N/A		
Sample Evaluations (SAM)	1	All hits within cal. Range	WOK No* AIIND	Flags App	
	1	Total > Dissolved	OK No* PN/A	Flags Appl	
Field Duplicates (FD)	1	Precision of native vs Field Dup	OK L'No* N/A	Flags App	
This sheet is applicable to multiple me	thods.	All requirement items may not apply to ever	ry analytical method.		
Case Narrative Comments:					
		NO EXCEPTIONS	KOTED		
		Com	ments		
OC Item					
<u>QC Item</u>					
OC Item F DUM [[]	/	= 10 /22,9	lp0 = 78.4		
OC Item FOUR ///	l Z Mn o	= 10 /22,9	in 11/12.		
OC Item F DUSP	Z Nag	= 10 /22,9 "I" peraks	in 11/12.		
OC Item F DUP	Z NAG	= 10 /22,9 "I" peaks	in 11/12.		
OC Item F DUSP	Z Mag	= 10 /22,9 "7" praks	in 11/12.		
OC Item F DUP	Z IMA	= 10 /22.9 "I" peraks	in 11/12.		

1 INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

		INORGANIC A	ANALYSES DATA S	HEET			
					_	HS0001000	N1
Name: SOUTH	WEST_LAB_O	F_OK	Contract: CH2	M-OKO	ا_ إ	DG No.: 38	707-1
Code: SWOK_	Cas	se No.: 38	707 SAS NO.:	Tab 9		ID: 38707.	
Matrix (soil/wa Level (low/med)	: LOW			Date.	Receiv	red: 05/25/	99
% Solids:	_87.	- 9					
Con	centration	Units (ug	/L or mg/kg dry	y weig	ght): N	MG/KG	
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	CAS No.	Analyte	Concentration		о м		
	CAD NO.	imaryce	000		~		
	7439-92-1	Lead	18.9		P	_	
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Color After:	YELLOW	Clar	ity After: $\overline{\mathtt{CL}}$	EAR_	1	Artifacts:	
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Comments: CLIENT_ID:_	SGRBHS0001	000N1					

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				F	ISO001002N1
b Name: SOUTHWEST_	LAB OF OK	Cor	ntract:CH2M-O	KC	
⊿b Code: SWOK		38707	SAS No.:	SDC	No.: 38707
atrix (soil/water):	SOIL		Lab	Sample II	0: 38707.02
evel (low/med):	LOW -		Dat	e Received	1: 05/25/99
Solids:	_85.3				

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	12.8			P_
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Color Before: Color After:	BROWNYELLOW	Clarity Before: Clarity After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLIENT_ID:	_SGRBHS0001002N1_				
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INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

							HS	500020	000N1
-1	Name:	SOUTHWEST	LAB OF O	K	Contract	:CH2M-OKC			
	Code:			No.: 38707	SAS	No.:	SDG	No.:	38707
Water.		11/	COTT			Tab Camal	~ TD	. 2076	מת מים

Matrix (soil/water): SOIL_ Level (low/med): LOW_

Lab Sample ID: 38707.03 Date Received: 05/25/99

_92.3 % Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	М
	Lead	50.8	-		<u>P</u>
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M4/13 05046

ab Name: SOUTH ab Code: SWOK Matrix (soil/wa Level (low/med) % Solids:	HWEST_LAB_O Ca ater): SOIL): LOW88.		Contract:CH2 707 SAS No.:	2M-OKC: : Lab San Date Re	HS0002002N1 SDG No.: 38707 mple ID: 38707.04 eccived: 05/25/99
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight	c): MG/KG
	CAS No.	Analyte	Concentration	C Q	M
	7439-92-1	Lead	7.9		
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Color Before: Color After:	BROWN YELLOW	Clari Clari	ty Before: CLE	. _ :AR	Texture: MEDIUM Artifacts:
Comments: CLIENT_ID:_			-		

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INORGANIC	ANALYSES	DATA	SHEET

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4	Mame .	SOUTHWEST	LAB OF OK	Co	ntract: CH2M-	-OKC			
72803	Code:	-	Case No.:	38707	SAS No.:		SDG No.	: 38707	_
		oil/water)			Lā	ab Sample	ID: 38	3707.05	

Matrix (soil/water)
Level (low/med): LOW _ Date Received: 05/25/99

_91.2 % Solids:

CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	7.0			P_
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Comments: CLIENT_ID:	_SGRBHS0003000N1				
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CLIENT SAMPLE ID

ab Name: SOUTH ab Code: SWOK atrix (soil/wa evel (low/med) Solids:	Ca: ater): SOIL	se No.: 38	Contract:CH2 707 SAS No.	: La	b Sampl	HS0003002N1 SDG No.: 38707 Le ID: 38707.06 eived: 05/25/99
Cor	ncentration	Units (ug	/L or mg/kg dry	y w	reight):	MG/KG
	CAS No.	Analyte	Concentration	С	Q	м
	7439-92-1	Lead	6.4	-		<u>P_</u>
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Comments: CLIENT_ID:_:	SGRBHS00030	02N1				

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CLIENT SAMPLE ID

	arov ora	HS0004000N1
Name: SOUTHWEST_LAB_OF_OK_		
Code: SWOK Case No	J	SDG No.: 38707_
Matrix (soil/water): SOIL_		ID: 38707.07
Level (low/med): LOW	Date Receiv	ved: 05/25/99
2 Solids . 89.6		

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CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	68.9			P_
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trix (soil/wawel (low/med Solids:	ater): SOIL): LOW87.	<u>-</u> 9	Contract:CH2 707 SAS No.: /L or mg/kg dry	La	ib Samp ite Rec	le I eive	OG No.: 38 D: 38707. ed: 05/25/	08
	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	6.2	-		P_		
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omments:	GGDD11G00046							

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CLIENT SAMPLE ID

a*	Gambing the CUSM OVC	HS0005000N1
Name: SOUTHWEST LAB OF OK	Contract:CH2M-OKC	
D Code: SWOK Case No.:	38707 SAS No.:	SDG No.: 38707
Matrix (soil/water): SOIL_	Lab Sample	ID: 38707.09
Level (low/med): LOW	Date Receiv	<i>r</i> ed: 05/25/99
% Solids: 92.7		

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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	269			P_
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Comments: CLIENT_ID:_	_SGRBHSO005000N1					
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CLIENT SAMPLE ID

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ab Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-OKC_ ab Code: SWOK___ Case No.: 38707 SAS No.:____

SDG No.: 38707 Lab Sample ID: 38707.10

Matrix (soil/water): SOIL_ Level (low/med): LOW_

Date Received: 05/25/99

89.3 % Solids:

CAS No.	Analyte	Concentration	С	Q	M
7439-92-1		7.8	-		<u>P</u>
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Comments: CLIENT_ID:	_SGRBHS0005002N1				
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CLIENT SAMPLE ID

Name: SOUTHWEST_LAB_O ab Code: SWOK Ca Matrix (soil/water): SOIL	se No.: 38	Contract:CH2 707 SAS No.:	:	HS000600 SDG No.: 3 Le ID: 38707	8707
Level (low/med): LOW_ % Solids: _86.			Date Rece	eived: 05/25	/99
Concentration	Units (ug	/L or mg/kg dry	y weight):	: MG/KG	
CAS No.	Analyte	Concentration	C Q	M	
7439-92-1	Lead	10.0		P_ J	FD

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Color Before: BROWN Color After: YELLOW	Clar	ity Before: CLI	EAR_	Texture: Artifacts:	
Comments: CLIENT_ID:_SGRBHS0006	000N1				
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CLIENT SAMPLE ID

ab Name: SOUTHWEST_LAB_OF_OK_____ Contract:CH2M-OKC_______ HSO006000FD

ab Code: SWOK_____ Case No.: 38707 SAS No.: SDG No.: 38707

Matrix (Soil/water): SOIL_______ Lab_Sample ID: 38707 13

Matrix (soil/water): SOIL Level (low/med): LOW_ % Solids: _87.2

Lab Sample ID: 38707.12 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	С	Q	M			
7439-92-1	Lead	22.9	_		P_	コ	_	FD
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COmments: CLIENT_ID:_S	GRBHSO006000FD_				
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CLIENT SAMPLE ID

INORGANIC ANALYSES DATA SHEET										
Name: SOUTHWEST_LAB_OF_OK										
Con	centration	Units (ug,	L or mg/kg dry	/ W	reight):	: MG	/KG			
	CAS No.	Analyte	Concentration	С	Q	М				
	7439-92-1	Lead	8.3	-		P_				
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CLIENT SAMPLE ID

Matrix (soil, Level (low/me % Solids:	(water): SOIL ed): LOW_ _86.	- 9	Contract:CHZ	Lab Sam Date Re	mple ID: 38707.14 eceived: 05/25/99	
(Concentration	Units (ug	/L or mg/kg dry	y weight	:): MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	7.2		P	
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Comments: CLIENT_ID	:_SGRBHS00060	02FD				

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CLIENT SAMPLE ID

HS0007000N1

Lab Code: SWOK_Matrix (soil/wallevel (low/med)% Solids:		e No.: 387	Contract:CH2 707 SAS No.: /L or mg/kg dry	La Da	b Sampl te Rece	SDO e II ived	F No.: 38707_ D: 38707.15 d: 05/25/99
	CAS No.	Analyte	Concentration	С	Q	м	
	7439-92-1	Lead	10.9	_		P_	
	7439-92-1						
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CLIENT SAMPLE ID

ab Name: SOUTH ab Code: SWOK Matrix (soil/wa Level (low/med) s Solids:	HWEST_LAB_OF — Cas ater): SOIL_): LOW _92.9		Contract:CH2 707 SAS No.:	2M-C : Lab Dat	OKC O Sample ce Recei	SDG 1 E ID:	3870	38707_ 7.16	j.
Cor	ncentration	Units (ug	/L or mg/kg dry	y we	eight):	MG/K	G		
	CAS No.	Analyte	Concentration	c	Q 1	4			
	7439-92-1	Lead	6.2	- -		-			
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Comments: CLIENT_ID:_	_SGRBHSO0070	02N1							

CLIENT SAMPLE ID

Name: SOUTHWEST	LAB OF OK	Contract:CH2M-OKC_	HS0008000N1
ab Code: SWOK	Case No.: 3870		SDG No.: 38707
Matrix (soil/water):	SOIL		ample ID: 38707.17
Level (low/med):	LOW _	Date I	Received: 05/25/99
% Solids:	_92.2		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	9.4	_		P_
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ib Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC ∟ab Code: SWOK

Case No.: 38707 SAS No.:

SDG No.: 38707_

Matrix (soil/water): SOIL_ Level (low/med): LOW_

Lab Sample ID: 38707.18 Date Received: 05/25/99

% Solids:

_95.1

CAS No.	Analyte	Concentration	C	Q	М
7439-92-1		4.3	-		P_
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Comments: CLIENT_ID:_SGRBHS00	08002N1			
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CLIENT SAMPLE ID

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Name: SOUTHWEST_	LAB_OF_OK		ract:CH2M-OKC	
പർധ Code: SWOK	Case No.:	38707	SAS No.:	SDG No.: 38707
Matrix (soil/water):	SOIL		Lab S	ample ID: 38707.19
Level (low/med):	rom _		Date	Received: 05/25/99
% Solids:	90.6			

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No. Analyte Concentration C Q M P	1					1
7439-92-1 Lead	CAS No.	Analyte	Concentration	С	Q	М
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Color Before: BROWN Color After: YELLOW	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:_SGRBHS0009000N1	<u> </u>				

CLIENT SAMPLE ID

HS00010000N

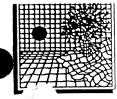
ab Name: SOUTHWEST	LAB OF OK	Con	tract:CH2M	I-OKC	HS00010000N	
Lab Code: SWOK Matrix (soil/water): Level (low/med): & Solids:	Case No.:	38707		ab Sample	SDG No.: 38707_ ⊇ ID: 38707.20 Lived: 05/25/99	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	3.8	_		P_
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	Before: After:	BROWNYELLOW	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comme		SGRBHS00010000N_					arreconomical delication
			FOR	W T - TN			***************************************

14/13



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill 🔌

REPORT : 38707.05

Suite 300

Del City, OK

REPORTED : 06/15/99

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

: 38707.05

SAMPLE #: SGRBHS0003000N1

LOCATION:

MATRIX : Soil

%MOISTURE: 8.8

MISCELLANEOUS

DATE DATE REFERENCE

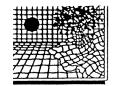
PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

PH*

8.6

06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38707.10

SAMPLE #: SGRBHS0005002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

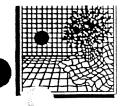
%MOISTURE: 10.7

MISCELLANEOUS

DATE DATE REFERENCE RESULTS** UNITS PREPARED ANALYZED METHOD PARAMETER

7.9 su 06/05/99 SM 4500H/EPA 150.1 PH*

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

. _MHill

REPORT : 38707.17

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38707.17

SAMPLE #: SGRBHS0008000N1

LOCATION:

MATRIX : Soil

%MOISTURE: 7.8

MISCELLANEOUS

DATE

DATE

REFERENCE

PARAMETER

RESULTS**

UNITS PREPARED ANALYZED METHOD

SAMPLED : 05/21/99 `

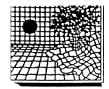
SUBMITTED: 05/25/99

PH*

7.8

su

06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300

Del City, OK REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.03 SAMPLE #: SGRBHS0010002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

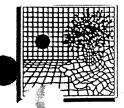
%MOISTURE: 8.0

MISCELLANEOUS

DATE DATE REFERENCE PARAMETER RESULTS** UNITS PREPARED ANALYZED METHOD

PH* 7.9 06/05/99 SM 4500H/EPA 150.1

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

.zmHill

REPORT : 38708.07

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.07

SAMPLE #: SGRBHS0012000N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

%MOISTURE: 6.0

MISCELLANEOUS

DATE DATE REFERENCE

PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

PH*

8.1

06/05/99 SM 4500H/EPA 150.1

Data Review and Validation	for:	Metals and,	Cor Cyar	ride LEAD ONLY	•
Project Name & Task:	L	AREDO AFB		IWTP	
Project # & Case/SDG:	147436.DV.ZZ			38708A	
Methods: ILM04.0 450	V-846 (6		200	series 300 series	SM 3000 series
Program: AFCEE NF	ESC	Other:	-	Number of Samples:	, ,
Field QC Samples:	13,-	F16 2- m5/m	141	6+13-EB	,
Reviewed by & Date:	1/		4	1/2/2000	
	#	Other .		12/1000	•
Matrix: Water 4 Soil		Other			
Quality Control	Form	Requirements		Check	Flags Applied
	#			* checked, see comments)	(see comments)
Data Pkg Complete (DP)		All required deliverables in pkg.	POK	No* Not provided	Flags Applied
TY I I' TO' (YYTT)		All samples on COC reported	Рбк	No*	Flags Applied
Holding Times (HT)		Cyanide 14 day HT met	∐ OK	No* AN/A	Flags Applied
	COC	Mercury 28 day HT met Other metals 160 day HT met	LOK	No* 4N/A	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	OK	No* ☐ N/A ☐ No* ☐ Not provided	Flags Applied
initial Canbi atton (IC)	raw	Linearity method criteria	ОК	No* Not provided No* Not provided	Flags Applied
	2	ICV criteria	1 JOK	No*	
Continuing Calibration (CC)	14	CCV frequency	1 JOK	No*	Flags Applied
Continuing Canbration (CC)	2	CCV critieria	1 20K	□ No*	riags Applied
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	Jok -	No* ☐ see blnk wksht	Flags Applied
ICB and CCB	3	ICB, CCB	ОК	□ No* □ see blink wksht	4
Prep Blank Frequency (PB)	3	1 PB per batch	1 Jok	No* trace	1
ICP Interference Check (ICS)	4	Method criteria met	LOK	No*	Flags Applied
MS/MSD or MS/LD	5	MS/MSD MS/LD None*	₽0K	No*	Flags Applied
	5	Recovery Limits: Lab 4 Meth	₽ok.	□ No*	1 Cogs / ppince
	6	Precision criteria	ZOK	□ No*	1
Post Spike Samp. Recov.	5	Criteria met	ОК	No* PNA	Flags Applied
Duplicate Samples (LD)	6	Criteria met	LOK	□ No* □ N/A	Flags Applied
LCS (BS)	7	Frequency	40K	□ No* □ N/A	Flags Applied
LCS only LCS/LCSD		Acceptance criteria met	Zek	□ No*	1
Standard Addition	8	Criteria met	Ок	□ No* □ N/A	Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	Ок	→No* N/A	Flags Applied
Internal Standard (IS)		Internal Standards used	ОК	□ NO* □NTA	
Sample Evaluations (SAM)	1	All hits within cal. Range	WOR	□ No* □ All ND	Flags Applied
	1	Total > Dissolved	Ок	□ No* □ N/A	Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	LOK	□ No* □ N/A	Flags Applied
	thods. A	ll requirement items may not apply to every	y analytical		
Case Narrative Comments:	-5	White A.L.		11. 0 ar	7///
		WIAL DILLETON	<u> </u>	- Thegged "E"	by hib.
OC Item		Comm	<u>nents</u>		
CCB PAR	d n	referred in c	CB	at 7.3 us/	2- 110
SAW,	rbs	Afterdal - L	0 F	CAGS APPLE	ed
50 Th		12.6 900 - 1	Tan.	an besults	'.T'
	<u> </u>		ury	INW KT MINIS	·

DV_wksht_0300.xls

Page _____ of ____

Metal&CN

	:	INORGANIC A	ANALYSES DATA S	SHEET		TELLI OTE	
GOLIMIN	waam tab oo	D 01/	Combined CU	M-OVC		HSO00900	2N1
Name: SOUTH lode: SWOK_Matrix (soil/wallevel (low/med) Solids:	: FOM_		708 SAS No.:	Lab San Date	I_ SI ample I Receive	OG No.: 3 D: 38708 ed: 05/25	3.01
Con	centration	Units (ug	/L or mg/kg dry	y weig	ht): MG	G/KG	
	CAS No.	Analyte	Concentration	C Q	м		
	7439-92-1	Lead	13.4		= P_	J	5D
				-		-	
						-	
						- - _	
Color Before: Color After:	BROWN	Clari Clari	ity Before: CLE	EAR_		exture: ctifacts:	MEDIUN
Comments: CLIENT_ID:_	_SGRBHSO009	9002N1					

FORM I - IN

All 4/13/2000

HS0010000FD

							11120010	UGED
Lab	Name:	SOUTHWEST	LAB OF OK	Co	ntract:CH2M-	OKC		
ab	Code:	SWOK	Case No.	: 38708	SAS No.:		SDG No.:	387082

Matrix (soil/water): SOIL_ Level (low/med): LOW_ Lab Sample ID: 38708.02 Date Received: 05/25/99

Solids: LOW_____92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	3.8	_	E	P_	J	5D
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	Before: After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLI CLI		_SGRBHSO010000FI	D				
			FOR	M I - IN			

Al 4/13

CLIENT SAMPLE ID

	:	INORGANIC	ANALYSES DATA S	SHEET		
I > Namo, COUTU	weer iar o	F OK	Contract · CH2	M-OKC	HS00100	002FD
J Name: SOUTH	: LOW_		708 SAS No.:	Lab Samp Date Red	SDG No.: ple ID: 3870 ceived: 05/2	38708A 08.03 25/99
Con	centration	Units (ug	/L or mg/kg dry	y weight)	: MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	3.4	I E		50
						MIND TITE
Color Before: Color After:	BROWN	Clar Clar	ity Before: $\overline{\text{CLI}}$	EAR_	Texture: Artifact	
Comments: CLIENT_ID:_	_SGRBHS001	0002FD				

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK_____Contract:CH2M-OKC______HS0011000N1

b Code: SWOK Case No.: 38708 SAS No.:

SDG No.: 38708A Lab Sample ID: 38708.04

.atrix (soil/water): SOIL_
Level (low/med): LOW_
} Solids: __87.3

Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	5.0	_		<u>P_</u>	I	5D
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Color Before: Color After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
COmments: CLIENT_ID:	SGRBHSO011000N	1				
4		FOR	M I - IN			1

Al/13

.æix (soil/w Level (low/med % Solids:	vater): SOII 1): LOW_ _88.	<u>-</u> 1	Contract:CH2	Date Rece:	HS001100: SDG No.: 3: E ID: 38708 ived: 05/25	8708A .05
Co	oncentration	Units (ug	/L or mg/kg dry	y weight):		
	CAS No.	Analyte	Concentration		м	
	7439-92-1	Lead	5.2	- E	P_ J 5	D
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l						
	**************************************		-			
				_		
Color Before: Color After:	BROWN	Clari Clari	ty Before: <u>CLE</u>	EAR_	Texture: Artifacts:	MEDIUM
Comments:	:SGRBHS001	1002N1				
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		· · · · · · · · · · · · · · · · · · ·	FORM I - IN			

					I UPOOTSOOMT
ab	Name:	SOUTHWEST LAB	OF OK	Contract:CH2M-OKC	
_				03.0 37	ODO ME SOCO

ib Code: SWOK_ Case No.: 38708 SAS No.:

SDG No.: 38708A

.atrix (soil/water): SOIL_
Level (low/med): LOW____

Lab Sample ID: 38708.07 Date Received: 05/25/99

: Solids:

_94.0

CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	9.2		<u>_</u> E	<u>P_</u>	J	5D
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Color Before: Color After:	BROWN	Clarity Before: Clarity After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comments:	:SGRBHS0012000)N1			
		FORM I - IN	1		

CLIENT SAMPLE ID

Name: SOUTHWE lode: SWOK latix (soil/wate level (low/med): Solids:	er): SOIL_ LOW _87.9			Date Recei	HS0012002 SDG No.: 38 E ID: 38708. Eved: 05/25/	708A 08
Conce	entration	Units (ug/	L or mg/kg dr	y weight):	MG/KG —	
Cz	AS No.	Analyte	Concentration		М	-3
7-	439-92-1	Lead	6.1			5D
			`			
- -						
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-						
	BROWN	Clar: Clar:	ity Before: ity After: CI	EAR_	Texture: Artifacts:	MEDIU
Comments: CLIENT_ID:	SGRBHS0012	2002N1				
			FORM I - IN			

4113 05077

HS0013000N1

Lab Name: SOUTHWEST_LAB_OF_OK___ Contract: CH2M-OKC 'b Code: SWOK

..atrix (soil/water): SOIL_ Level (low/med): LOW_

Case No.: 38708

SAS No.:

SDG No.: 38708A Lab Sample ID: 38708.09

% Solids:

_88.2

Date Received: 05/25/99

CAS No.	Analyte	Concentration	C	Q	М		
7439-92-1	Lead	36200	-	<u>=</u>	<u>P_</u>	J	SD
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Color Be	BROWNYELLOW	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
CLIE	 SGRBHSO013000N1	L				
		FORM	1 - IN			

CLIENT SAMPLE ID

INORGANIC ANALYSES DATA SHEET HS0013002N1 Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-OKC_______
Code: SWOK____ Case No.: 38708 SAS No.:
Lab Sat SDG No.: 38708A Lab Sample ID: 38708.10 Date Received: 05/25/99 Level (low/med): LOW 83.8 % Solids: Concentration Units (ug/L or mg/kg dry weight): MG/KG Concentration C 0 М CAS No. Analyte 50 J $\overline{\mathtt{P}}$ 7439-92-1 8.8 Lead Texture: MEDIUM Color Before: BROWN______
Color After: YELLOW____ Clarity Before: Clarity After: CLEAR_ Artifacts: _____ Comments:

CLIENT ID: SGRBHS0013002N1____

CLIENT SAMPLE ID

HS0014002N1

Lab Name: SOUTHWEST_LAB_OF_OK_ Contract: CH2M-OKC ab Code: SWOK_

Case No.: 38708 SAS No.:

SDG No.: 38708A

Matrix (soil/water): SOIL_ Level (low/med): LOW_

Lab Sample ID: 38708.12 Date Received: 05/25/99

% Solids:

_81.5

CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	6.4	_	_ E -	P_	J	5D
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Color Be Color Af	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comments CLIEN	_SGRBHSO014002N1	L				
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CLIENT SAMPLE ID

vame: SOUTH ode: SWOK_ matrix (soil/wa Level (low/med) % Solids:	ter): SOIL_	-	Contract:CH2	Lab Sampl	HSO015000 SDG No.: 38 Le ID: 38708 Eived: 05/25	
Con	centration	Units (ug	/L or mg/kg dry	y weight):	: MG/KG	
	CAS No.	Analyte Lead	Concentration 9.9		M P_ J -	50
Color Before: Color After:	BROWN	Clar	ity Before:	- -	Texture:	MEDIUM
Comments: CLIENT_ID:_	_SGRBHSO01	5000N1				

FORM I - IN

41/3 05083

Lab Name: SOUTHWEST I	LAB OF OK	Contract:CH2	HS0015002N1	
ab Code: SWOK	Case No.: 387		 DG No.: 38708A	
Matrix (soil/water):			ID: 38708.15	
Level (low/med):	LOW -		ved: 05/25/99	
& Solide.	81 -3		10/20/00	

CAS No. Analyte Concentration C Q M T T T T T T T T	1					ı		
	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	15.4	_	#_	P_	J	50
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olor Before: olor After:	BROWN	Clarity I	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUN
comments: CLIENT_ID:_	_SGRBHS0015002N	1				
		FORM	T - TN			

CLIENT SAMPLE ID

. A Name: SOUTHWEST LAR	OF OK Contract:	CH2M-OKC	SGRBHWQ01200					
Name: SOUTHWEST_LAB_OF_OK Contract: CH2M-OKC Code: SWOK Case No.: 38708 SAS No.: SDG No.: 38708B Lix (soil/water): WATER Lab Sample ID: 38708.06 Level (low/med): LOW Date Received: 05/25/99 Solids:0.0								
Concentrati	on Units (ug/L or mg/kg o	dry weight):	UG/L_					
CAS No.	Analyte Concentration	on C Q M	I FB					
7439-92-	-1 Lead2	.1 Ū F						
			_					
-								
Color Before: COLORLE Color After: COLORLE		CLEAR_ CLEAR_	 Texture: Artifacts:					
Comments: CLEIENTS_ID=_SGRBHW	Q012000EB							

Jab Name: SOUTH Jab Code: SWOK_ Matrix (soil/wa Level (low/med) Solids:	Cas lter): WATER : LOW0.0	se No.: 38'	Contract:CH2 708 SAS No.:	: Lab Samp Date Rec	SGRBHWQ01500 SDG No.: 38708B ele ID: 38708.13 eived: 05/25/99
	CAS No. 7439-92-1		Concentration 2.2	C Q	
Color Before: Color After:	COLORLESS COLORLESS	Clari Clari	ty Before: CLE ty After: CLE	. _ AR_ AR_	_l Texture: Artifacts:
Comments: CLEIENTS_ID	=_SGRBHWQ01	5000EB			

FORM I - IN

YOTAL & SPLP

LA	AREDO AFB	IWTP	
14	7436.DV.ZZ	39086	
		☐ 200 series ☐ 300 series ☐	SM 3000 series
ESC	Other:	Number of Samples:	
		_	
	<i></i>	1/12/2200	
196	ly	41/3/1000	
<u></u>	O ther		
Form	Requirements	Check	Flags Applied
#	indan emenes	(If No* checked, see comments)	(see comments)
Pkg	All required deliverables in pkg.	UOK No* Not provided	Flags Applied
COC	All samples on COC reported	POK No*	Flags Applied
		OK No* WNA	☐ Flags Applie
14,	Mercury 28 day HT met	OK No* NOA	☐ Flags Applied
COC	Other metals 160 day HT met	GOK No* N/A	Flags Applie
14			Flags Applie
raw			
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7			Flags Appli
	Acceptance criteria met		
8	Criteria met		Flags Appli
9	Criteria met		Flags Appli
	Internal Standards used		
1	All hits within cal. Range	UOK UNO* □ AII ND	Flags Appli
1	Total > Dissolved	OK No* HTA	Flags Appli
1	Precision of native vs Field Dup	OK No* N/A	Flags Appli
thods. A			
	_		
	110 00 10 at in 8		
	NO Exceptions		
10111	ocerly Load ell-in x on	141711 AS 50639	7071
-	Comp	nants	,
	Collin	nents	
116	-1011 ADDITA		
10	PLAGS APPLIED		
10	TLAGS APPLIED		
10	TLAGS APPLIED	Later let -5	·¬")
ND NVG E	TLAGS APPLIED	from lab ->	·J")
	14/2-846 (6) ESC Form # Pkg COC 1, 13, 14, COC 14 raw 2 14 2 3 3 3 4 5 6 5 6 7 8 9 1 1 thods. A	Form Requirements # Pkg All required deliverables in pkg. COC All samples on COC reported 1, 13, Cyanide 14 day HT met Mercury 28 day HT met COC Other metals 160 day HT met 14 Min. initial # of levels per method raw Linearity method criteria 14 CCV frequency 2 CCV criteria 3 Detects (>RL/CRDL) 3 ICB, CCB 3 I PB per batch 4 Method criteria met 5 Precision criteria met 5 Precision criteria 5 Criteria met 6 Criteria met 7 Frequency Acceptance criteria met 8 Criteria met 9 Criteria met 9 Criteria met 1 All hits within cal. Range 1 Total > Dissolved 1 Precision of native vs Field Dup thods. All requirement items may not apply to ever	147436.DV.ZZ 39086 147436.DV.ZZ 39086 147436.DV.ZZ 39086 147436.DV.ZZ 39086 147436.DV.ZZ 1500.DV.ZZ
U.S. EPA - CLP

INORGANIC ANALYSES DATA SHEET

CLIENT	SAMPLE	
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* 1			
.ab Name: SOUTHWEST_1	LAB_OF_OK	Contract:CH2M-OKC	SGRBHS000200
<pre>ab Code: SWOK latrix (soil/water): .evel (low/med): Solids:</pre>	Case No.: 39080	6 SAS No.: Lab Sam	SDG No.: 39086_ple ID: 39086.01 ceived: 06/21/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

1					,
CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	54.8			P_
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	Before: After:	BROWN COLORLESS	Clarity Clarity	Before: After:	Texture: Artifacts:	MEDIUM
CL:		SGRBHS0002000N1				
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FORM I - IN

My/3/2000

CLIENT SAMPLE ID

ab Name: SOUTHWEST_LAB_OF_OK		21.01.01.20 11117	ILLIOND DITTI OHDIT	
atrix (soil/water): SOIL Lab Sample ID: 39086.02 evel (low/med): LOW Date Received: 06/21/99				SGRBHS000400
	atrix (soil/water): evel (low/med):	SOIL_ LOW	Lab Sampl	e ID: 39086.02

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analuto	Concentration	~	0	
	1	Concentration		Q	M
7439-92-1	Lead	71.7	-		P
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	1	NORGANIC	ANALYSES DATA S	SHEET	CLIENT SAMPLE ID
					SGRBHS000500
<pre>.ab Name: SOUTH .ab Code: SWOK_ !atrix (soil/wa .evel (low/med) : Solids:</pre>	Cas lter): SOIL : LOW92.6	se No.: 39	086 SAS No.:	: Lab Samp Date Rec	SDG No.: 39086_ le ID: 39086.03 eived: 06/21/99
Cor		Units (ug	/L or mg/kg dry	y weight)	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
	7439-92-1	Lead	134		P_
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Color Before: Color After:	BROWN COLORLESS	Clar: Clar:	ity Before:		Texture: MEDIUM Artifacts:
<pre>Comments: CLIENT_ID:=</pre>	SGRBHS00050	00N1			
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			i ANALYSES DATA S			1	ENT SAM	
atrix (soil/wa evel (low/med) Solids:	: LOW90.0	-	Contract:CH2 086 SAS No.	Lа	ib Samp. ite Rece	le ID eived	F No.: 39 D: 39086 d: 06/21	.04
Con	ncentration	Units (ug	/L or mg/kg dry	, v	weight)	: MG/ 	′KG	
	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	14.4	₽		P_	J	IB
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	After:	COLORLESS	Clarity		 Artifacts:	
CL:		SGRBHS0006000FD	<u> </u>			
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CLI	ENT	SAMPLE	Ti

	INORGANIC .	1 ANALYSES DATA S	HEET	CLIENT SAMPLE	II
				SGRBHS000100	-
Lab Name: SOUTHWEST_LAB_O Lab Code: SWOK Ca tatrix (soil/water): SOIL Level (low/med): LOW_ Solids: _89.			Lab Samp	SDG No.: 39086 ple ID: 39086.05 peived: 06/21/99	
Concentration	Units (ug	/L or mg/kg dry	y weight	: MG/KG	
CAS No.	Analyte	Concentration	c Q	М	
7439-92-1	Lead	21.4	B-		- B
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Color Before: BROWN COLORLESS	Clar Clar	ity Before: ity After:		Texture: MED Artifacts:	NUI:
Comments: CLIENT_ID:=SGRBHS0001	000N1				
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CLIENT SAMPLE ID

Name: SOUTH Code: SWOK cix (soil/wa el (low/med) olids:	ater): WATE	R _	Contract:CH: 086 SAS No.	Lab	Sampl	e 1	002000N1 OG No.: 3 ID: 39086 ed: 06/21	 9086_ .01
Coı	ncentration	Units (ug	/L or mg/kg dry	y we	eight):	UC	5/L_	
	CAS No.	Analyte	Concentration	c	Q	M		
	7439-92-1	Lead	30.7	B _	-	P_	J	IB
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U.S. EPA - CLP

1 INORGANIC ANALYSES DATA SHEET

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Name: SOUTHW Code: SWOK_ rix (soil/wat rel (low/med) Solids:	WEST_LAB_OF Cas Eer): WATER	7_OK se No.: 39	ANALYSES DATA S Contract:CH2 086 SAS No.:	2M- : La	OKC b Sampl	SD e I	004000N1 OG No.: 3: D: 39086 ed: 06/21	.02 _
Cond	centration	Units (ug	/L or mg/kg dry	y w	eight):	UG 	5/L_	
	CAS No.	Analyte	Concentration	C	Q	М		
	7439-92-1	Lead	73.5	B		P_	J	工B
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mments: CLIENT_ID=S	GRBHS000400	0N1						

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CLIENT SAMPLE ID

Name: SOUT Code: SWOK ix (soil/w l (low/med	HWEST_LAB_O Cater): WATE): LOW_ 0.		Contract:CH2 086 SAS No.	2M-(: Lal Da	OKC b Sampl te Rece	 SDG e ID	No.: 39086_ : 39086.03 : 06/21/99	
Co	ncentration	Units (ug	/L or mg/kg dry	y we	eight):	UG/	L_	
	CAS No.	Analyte	Concentration	С	Q	м		
	7439-92-1	Lead	857	- - - -		P_		
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ments: CLIENT_ID=8	SGRBHS000500	0N1						
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U.S. EPA - CLP

1 INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

	1	NORGANIC A	ANALYSES DATA S	SHEET	006000FD	
Code: SWOK_ rix (soil/warel (low/med); olids:	Cas ter): WATER : LOW0.0	se No.: 39	Contract:CH2 086 SAS No.:	: Lab Sampl Date Rece	SDG No.: 39 Le ID: 39086 eived: 06/21	.04 -
Con	centration	Units (ug	/L or mg/kg dry	y weight)	: UG/L_	
	CAS No.	Analyte	Concentration	C Q	M	
	7439-92-1	Lead	4.6	B	P_ J	FB
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lor Before: lor After:	COLORLESS COLORLESS	Clar Clar	ity Before: CLI ity After: CLI	EAR_ EAR_	Texture: Artifacts:	
mments: CLIENT_ID=S	SGRBHS000600	00FD				

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CLIENT SAMPLE ID

	נ	NORGANIC A	ANALYSES DATA S	SHEET		
Name: SOUTHW	NEST LAB OI	F OK	Contract:CH2	2M-OKC	00100	0N1
<pre>Code: SWOK_ rix (soil/wat el (low/med): olids:</pre>			Contract:CH2 086 SAS No.:	: Lab Samp Date Rec	SDG No. le ID: 39 eived: 06	: 39086_ 086.05 /21/99
Conc	centration	Units (ug	/L or mg/kg dry	y weight)	: UG/L_	
C	CAS No.	Analyte	Concentration	C Q	М	
7	7439-92-1	Lead	47.1	B	P	IB
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wwents: CLIENT_ID=SG	RBHS000100	0N1				

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14/1/3

TOTAL & SPLP Metals and/or Cyanide USHD ONLY Data Review and Validation for: **IWTP** Project Name & Task: LAREDO AFB Project # & Case/SDG: 147436.DV.ZZ 39177 ☐ ILM04.0 ☐ SW-846 (6010B,7000 Series) ☐ Hg 7470A/71A ☐ 200 series ☐ 300 series ☐ SM 3000 series Methods: NFESC Number of Samples: AFCEE Other: Program: Field QC Samples: -m.3/m5D Reviewed by & Date: Other Water Soil Matrix: **Quality Control** Form Check Flags Applied Requirements (If No* checked, see comments) (see comments) ☐ No* ☐ Not provided __ Flags Applied Data Pkg Complete (DP) Pkg All required deliverables in pkg. 2110* COC All samples on COC reported Flags Applied No* LANA 1, 13, Cyanide 14 day HT met ⊟oк Flags Applied Holding Times (HT) ОК No* 4N/A Mercury 28 day HT met Flags Applied COC Other metals 160 day HT met 4 OK No* N/A Flags Applied Initial Calibration (IC) Min. initial # of levels per method ОК No* (L) Not provided Flags Applied 14 No* Not provided Linearity method criteria ОК raw LOK 2 ICV criteria No* 2 OK Flags Applied Continuing Calibration (CC) 14 CCV frequency No* LOK No* 2 CCV critieria Detects (>RL/CRDL) No* Blanks (PB,EB,FB/AB) 3 **∠**OK Flags Applied see blnk wksht LLOK No* ICB and CCB 3 ICB, CCB see blnk wksht 4 OK No* 1 PB per batch Prep Blank Frequency (PB) 3 WOK No* __ Flags Applied ICP Interference Check (ICS) Method criteria met OK MS/MSD MS/LD None* No* Flags Applied MS/MSD or MS/LD Recovery Limits: Lab Ameth LOK 5 No* Zek No* 6 Precision criteria Ок No* ZNA Flags Applied Post Spike Samp. Recov. 5 Criteria met Jok No* N/A Flags Applied Duplicate Samples (LD) Criteria met ZOK Flags Applied No* LCS (BS) Frequency N/A 14CS/LCSD LCS only Acceptance criteria met UOK No* Standard Addition 8 Ток No*] N/A Flags Applied Criteria met Flags Applied ICP Serial Dilution (SD) LOK No* Criteria met N/A ОК Internal Standards used Internal Standard (IS) No* MN/A Flags Applied 12OK Sample Evaluations (SAM) All hits within cal. Range No* All ND ☐ Flags Applied Total > Dissolved ∐ oκ No* Flags Applied ОК No* PN/A Field Duplicates (FD) Precision of native vs Field Dup This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method. Case Narrative Comments: **OC** Item Comments

DV_wksht_0300.xls Page _____ of ___

CLIENT SAMPLE ID

			HIMBIOGO DATA	<i>-</i>		
ab Name: SOUT	HWEST_LAB_O	F_OK	Contract:CH2	2M-0	OKC	016000N1
code: SWOK rix (soil/w Level (low/med	arer): SOIF	se No.: 39 -	177 SAS No.:	La	b Sampi	SDG No.: 3917 le ID: 39177.01
Solids:	_84.	6		Da	ce Rece	eived: 06/26/99
Co	ncentration	Units (ug	/L or mg/kg dry	y w	eight)	: MG/KG
	CAS No.	Analyte	Concentration	С	Q	м
	7439-92-1	Lead	23.3	- : - :		<u>P_</u>
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Comments: CLIENT_ID:_	SGRBHS00160	00N1				

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Hd 4/13/2000 05099

		TMORGANIC	ANALYSES DATA S	SHEE	gT.		
Matrix (soil/w Level (low/med & Solids:	ater): SOIL): LOW83	se No.: 39) - 2	Contract:CH2 177 SAS No.	Lab Dat	Sampl e Rece	017000N: SDG No.: ; e ID: 3917 eived: 06/20	39177_
Со	ncentration	Units (ug	/L or mg/kg dr	y we	eight):	MG/KG	
	CAS No.	Analyte '	Concentration	С	Q	м	
	7439-92-1	Lead	22.6	- - - -		P_	
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Color Before: Color After:	BROWN		ty Before: CLE	1_1_ AR		Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:_	SGRBHS00170						

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CLIENT SAMPLE ID

Name: SOUTH	HWEST_LAB_O	F_OK	Contract:CH2	2M-OKC	0180001	
Code: SWOK ix (soil/water) Level (low/med) Solids:	ater): SOIL		177 SAS No.:	Lab Sam	SDG No.: ple ID: 3917 cceived: 06/2	77.03
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight	:): MG/KG	
	CAS No.	Analyte	Concentration	C Q	м	
	7439-92-1	Lead	265		_ P_	

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Comments: CLIENT ID:	SGRBHS0018	000N1				
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CLIENT SAMPLE ID

S0016000N1

Lab	Name:	SOUTHWEST_LA	B_OF OK	Contract	::CH2M-UT
Lab	Code:	SWOK	Case No.:	39177 SAS	No.:

Lab Code: SWOK Case No.: 39177

Matrix (soil/water): WATER Level (low/med): LOW_

SDG No.: 39177B Lab Sample ID: 39177.01 Date Received: 06/26/99

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	11.1	Ē		<u>P_</u>	` J "	ΣB
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CLIENT_ID=_	SGRBHSO016000N1					
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CLIENT SAMPLE ID

Name: SOUTHWEST_LAB_OLLAD Code: SWOK Callad Matrix (soil/water): WATE	F_OK	Contract:CH2	2M-	UT		S00170	
Matrix (soil/water): WATE: Level (low/med): LOW_ % Solids:0.		I// SAS NO.:	La Da	b Samp te Rec	le I eive	D: 391	: 39177B ¹ L77.02 /26/99
Concentration	Units (ug	/L or mg/kg dry	y w	eight)	: U G	G/L_	
CAS No.	Analyte	Concentration	С	Q	м		
7439-92-1	Lead	13.5	₽ _		P_	J	IB
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Color After: COLORLESS	Clari	ty Before: CLE ty After: CLE				xture: tifact	
Comments: CLIENT_ID=_SGRBHSO0170	000N1						
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CLIENT SAMPLE ID

ab Name: SOUTE	HWEST_LAB_O	F_OK	Contract:CHI	2M-UT	SDG No.: 39177B
Matrix (soil/watevel (low/med) Solids:	ater): WATE	R	III SAS NO.	Lab Sample	E ID: 391778 e ID: 39177.03 ived: 06/26/99
Cor	ncentration	Units (ug	/L or mg/kg dr	y weight):	UG/L_
	CAS No.	Analyte	Concentration	C Q I	м
	7439-92-1	Lead	16.0-	B	P_ J IB
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Comments: CLIENT_ID=_	SGRBHS00180	00N1			

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Data Review and Validation	for:	Metals and/	or	Cyar	ride	- 0	L	40 Only		
Project Name & Task:	L	AREDO AFB				IW	TP			
Project # & Case/SDG:	14	7436.DV.ZZ				393	390			
Methods: ILM04.0 45W	/-846 (6	010B,7000 Series)	Г	7 200	ser	ies [\exists :	300 series	SM	3000 series
	ESC	Other:						er of Samples:		
Field QC Samples:								· •		- 09
		<i></i>			7	1/2	7.	1000		
Reviewed by & Date:	SI	i (luf		_9	<u> </u>	12		000		
Matrix: Water 4 Soil	<u> </u>	Other								
C - 24 - C - 4 - 1	Form	Bita	_		-	Ch	ack		F	lags Applied
Quality Control	#	Requirements	ĺ	(If No	* cł			comments)		ee comments)
Data Pkg Complete (DP)		All required deliverables in pkg.	17	lek	T	No*		Not provided	T	Flags Applied
Data 1 ng Compress (22)		All samples on COC reported	ΓĒ	ОК	Ŀ	No*	3			Flags Applied
Holding Times (HT)		Cyanide 14 day HT met		ОК		No*		N/A		Flags Applied
	14,	Mercury 28 day HT met	I	ОК		No*		N/A		Flags Applied
	coc	Other metals 160 day HT met	Ŀ	dok_	上	No*		N/A	<u> </u>	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	片	J OK	누	No*		Not provided	<u> </u>	Flags Applied
	raw	Linearity method criteria	1	JOK JOK	누	No*	4	Not provided		
Continuing Calibration (CC)	2	ICV criteria CCV frequency	-	JOK	十	No*			T	Flags Applied
Continuing Calibration (CC)	2	CCV riequency		Jok .	十	No*	-		L) i lags Applica
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	*****	-ок	T	No*	П	see blnk wksht	Т	Flags Applied
ICB and CCB	3	ICB, CCB		ок	Ē	No*	П	see blnk wksht		- 5
Prep Blank Frequency (PB)	3	1 PB per batch	L	- Ток	L	No*	_			
ICP Interference Check (ICS)	4	Method criteria met	Z	OK		No*				Flags Applied
MS/MSD or MS/LD	5	MS/MSD MS/LD UNone*	I	ОК	L	No*			L	Flags Applied
	5	Recovery Limits: Lab Meth	L	OK	Ļ	No*				
	6	Precision criteria	井	OK	_	No*	<u></u>		-] F(A!'
Post Spike Samp. Recov.	5	Criteria met	井	JOK LOK	누	No*	-	N/A	╫	Flags Applied Flags Applied
Duplicate Samples (LD) LCS (BS)	7	Criteria met Frequency		40K	╁	No*	-	N/A N/A	┝	Flags Applied
LCS (BS)	'	Acceptance criteria met		90K	十	No*	لسل	IVA	<u> </u>	_ 1 1095 1 pp c.
Standard Addition	8	Criteria met	忙	ОК	〒		U	N/A		Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	T	ОК	T	No*		N/A	ΙL	Flags Applied
Internal Standard (IS)		Internal Standards used	\prod	ОК		No*		N/A	_	
Sample Evaluations (SAM)	1	All hits within cal. Range	Į	_ ок	L	No*		All ND	_	Flags Applied
	1	Total > Dissolved	╄	ОК	+	No*	_	N/A	┼┾	Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<u> </u>	JOK	<u> </u>	J No*	<u></u>	N/A		_ Flags Applied
This sheet is applicable to multiple me	thods. A	ll requirement items may not apply to ever	y an	alytica	ıl me	ethod.				
Case Narrative Comments:										
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OC Item		Comp	<u>1en</u>	<u>ts</u>						
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CLIENT SAMPLE ID

Name: SOUTH	WEST_LAB_OI Cas	F_OK	Contract:CH2 390 SAS No.:	2M-	окс		16000N1 No.: 39	9390
atrix (soil/wa evel (low/med) Solids:	ter): SOIL	-		La	b Sample te Rece:	∍ ID	: 39390.	.01
Con	centration	Units (ug	/L or mg/kg dry	7 W	veight):	MG/	KG	
	CAS No.	Analyte	Concentration	c	Q I	M		
	7439-92-1	Lead	17.1	B _		P_		
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Comments: CLIENT_ID_=	SGRBHS00160	000NI						
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1 INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

evel (low/med Solids: Co	_83.	Ō	/L or mg/kg dr			ved: 07/:	13/99
	CAS No.	Analyte	Concentration	С	Q M		
	7439-92-1	Lead	21.7	B -	P	J C8 2/2/	2000
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CLIENT SAMPLE I	JIENT	SAMPLE	TF
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Name: SOUTH	WEST LAB O	F OK	Contract:CH2	2M-OKC	018000N1
Name: SOUTH Lab Code: SWOK_ Matrix (soil/wa Level (low/med) % Solids:	: TOM_		390 SAS No.:	Lab Samp Date Red	SDG No.: 39390_ ple ID: 39390.03 peived: 07/13/99
		Units (ug	/L or mg/kg dry	y weight)	: MG/KG
	CAS No.	Analyte	Concentration	C Q	М
	7439-92-1	Lead	76.5		_
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	400400000000000000000000000000000000000				
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Comments: CLIENT_ID_=	SGRBHS0018	000N1			
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4/13 05109

USACE Data Comparability Report

Memorandum For Greg Williams, CESWT-EC-EF Carol Wies, CESWT-EC-EF

SUBJECT: Site Inspection Report, Shotgun Range Site, Former Laredo Air Force Base; Data Validation Review (April 2000).

- 1. A review of the CH2MHILL's Data Validation Report for the Shotgun Range Site located at the Former Laredo Air Force Base, Laredo, Texas has been completed.
- 2. Between 21–24 May 1999, fifteen shallow subsurface soil borings were hand augered to a depth of two feet below ground level. From these locations approximately thirty soil samples were collected in addition to three field duplicate samples and two equipment blanks. On 24 June, three additional subsurface soil samples and one field duplicate were collected for confirmation purposes. Three soil samples were collected during 21-24 May for quality assurance requirements.
- 3. All field and field duplicate samples were to be analyzed for total lead by SW846 method 6010. Additionally, soil samples exhibiting elevated concentrations of lead were reanalyzed for total lead by the synthetic precipitation leachate procedure (SPLP). Five soil samples were analyzed by SPLP.
- 4. The majority of soil and field duplicate samples were shipped to Southwest Laboratory of Oklahoma (SWLO) located in Broken Arrow, Oklahoma. The three quality assurance samples were shipped to Environmental Testing and Consulting Inc (ETC), located in Memphis, Tenessesse.
- 5. A comparison of the field and field duplicate results has been tabulated and attached. A review of the data indicates that the field and field duplicate results are generally consistent. In general, the primary laboratory's reporting limits are slightly lower than the limits reported by the quality assurance laboratory.
- 6. A review of the primary laboratory and its data indicate no significant problems regarding matrix spike recoveries, laboratory spike recoveries, and laboratory blank contamination. CH2MHILL's data review noted the presence of lead in a continuing calibration blank, but that it did not effect any samples. A review of the quality assurance data noted some problems with the results reported by ETC. Lead recoveries for the matrix spike and duplicate and relative percent difference fell outside quality control limits. The post digestion spike was also reported to have failed. ETC reported all lead results were based on the Method of Standard Additions. An additional review of the data is underway to evaluate these problems. The quality assurance data should be considered estimated until these problems can be resolved.

7. A review of the analytical data submittal and data validation report regarding the May and June 1999 Site Investigation of the Shotgun Range at the Former Laredo AFB has been completed. An evaluation of the data indicates that the sample handling, shipment, and analytical procedures appear to have been adequately completed and that the analytical results should be considered accurate except in those cases where they have been qualified as estimated within this report. In particular, the lead quality assurance results should be considered as estimated until all issues have been resolved.

Christopher Kennedy, Senior Chemist



Former Laredo Air Force Base Shotgun Range (SG) Site Investigation

	SGRBHSO006000N1	SGRBHSO006000FD1	SGRBHSO006000FD2
Sample ID	(Field)	(QC Duplicate)	(QA Duplicate)
Lab ID	38707.11	38707.12	9905603-05
Sample Date	05/21/1999	05/21/1999	05/21/1999

Parameter	Method	Analyte	Units			
	6010B	Lead	mg/kg	10 J	22.9 J	<25.0

Notes

Former Laredo Air Force Base Shotgun Range (SG) Site Investigation

	SGRBHSO010000N1	SGRBHSO010000FD1	SGRBHSO010000FD2
Sample ID	(Field)	(QC Duplicate)	(QA Duplicate)
Lab ID	38707.2	38708.02	9905603-04
Sample Date	05/21/1999	05/21/1999	05/21/1999

Parameter

Method	Analyte	Units			
6010B L	ead	mg/kg	3.8	3.8 J	<25.0

Notes



Former Laredo Air Force Base Shotgun Range (SG) Site Investigation

	SGRBHSO06002N1	SGRBHSO06002FD1	SGRBHSO06002FD2
Sample ID	(Field)	(QC Duplicate)	(QA Duplicate)
Lab ID	38707.13	38707.14	9905603-03
Sample Date	05/21/1999	05/21/1999	05/21/1999

Parameter	Method	Analyte	Units			
	6010B	Lead	mg/kg	8.3	7.2	<25.0

Notes



Central TX Region

8101 Cameron Rd #306 - Austin, TX 78754

512/821-0045 FAX 512/821-0237

Report Date: 06/11/1999

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Project Report: 102380

Client: EET1

EET, Inc PO Box 1890

Manchaca, TX 78652-1890 Attention: A. Harasimowitz

Results for Project 102380

:09349 Purge/Decon	Water Forme	er Laredo AFE	3 Liqu	uid Aqueous Taken: 05/20/	1999 By: Client	Rec:05	5/26/1999
Param eter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
lash Point (Reg. Limit 140.0 F)	>200	Degrees F		EPA Method 1010	05/28/1999 1515	PRE	
otal Petroleum Hydrocarbon	3 9	mg/L	1	EPA Method 418.1	06/09/1999 1730	GDG	
*CLP Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6010B	06/08/1999 1139	WOB	7440-22-4
*CLP Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
CLP Barium (Reg. Limit 100.0)	0.242	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
'CLP Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
CLP Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
'CLP Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
CLP Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
eactivity Cyanide (RL 250)	ND	mg/kg	4.0	EPA Method 7.3.3	05/28/1999 1500	RSV	
CLP *4ciry (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/02/1999 1412	WOB	7439-97-6
Ct a-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	58-89-9
CLP Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0546	KLB	57-74-9
CLP Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-20-8
CLP Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	76-44-8
CLP Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	1024-57-3
CLP Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-43-5
CLP Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0546	KLB	8001-35-2
CLP 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1642	KLB	94-75-7
CLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1642	KLB	93-72-1
CLP 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	107-06-2
CLP 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	75-34-3
CLP Benzene (Rég. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	71-43-2
CLP Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	56-23- 5
CLP Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	108-90-7
CLP Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	67-6 6-3
CLP MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0010	KLB	78-93-3
CLP Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	127-18-4
CLP Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	79-01- 6
LP Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0010	KLB	75-01-4
LP 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	106-46-7
LP 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	121-14-2
_P Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	67-72-1
LP Hexachlorobenzene (.13)	ND	mg/L	0.1 -	EPA Method 8270C	06/04/1999 1519	KLB	118-74-1
LP Vorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	87-68-3
L. 🦣 nzene (Limit 2)	ND	mġ/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	98-95-3
LP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1519	KLB	87-86-5









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Project Report:

102380

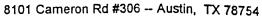
Client: EET1

Results for Project 102380

3349 Purge/Deco	n Water Form	ner Laredo Al	FB	Liquid Aqueous Taken: 05/20	0/1999 By: Clie	nt Rec:(05/26/1999
ameter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
.P Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	110-86-1
.P Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	1319-77-3
.P 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151	9 KLB	88-06-2
.P 2,4,5-Trichlorophenol (400) ND	mg/L	0.1	EPA Method 8270C	06/04/1999 151) KLB	95-95-4
oratory pH	7.4	su		EPA Method 9040A	05/28/1999 1630	PRE	
ctivity Sulfide (RL 500)	ND	mg/kg	10	SW-846 7.3.4	05/28/1999 1000) RSV	
350 Soil Cutting	s Former Lar	edo AFB	;	Solid Taken: 05/20/1999	By: Client Re	c:05/26/1999	
ımeter	Result	Unit .	MAL	Method	Analyzed	Ву	CAS
l Petroleum Hydrocarbon	58	mg/kg	10	EPA Method 418.1	06/03/1999 1130) GDG	
P Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
P Barium (Reg. Limit 100.0)	0.264	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
P Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
P Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
P Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
P Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
P Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-22-4
P Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/01/1999 1431	WOB	7439-97-6
P Gamma-BHC (Lindane) RL	. ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	58-89-9
³ Chlordane (Reg. Limit 0.03) ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0449	KLB	57-74-9
[□] Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-20-8
³ Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	76-44-8
³ Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	1024-57-3
² Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-43-5
³ Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0449	KLB	8001-35-2
² 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1716	KLB	94-75-7
² 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1716	KLB	93-72-1
³ 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	107-06-2
³ 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	75-34-3
3 Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	71-43-2
³ Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	56-23-5
³ Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	108-90-7
³ Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	67-66-3
³ MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0105	KLB	78-93-3
³ Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	127-18-4
³ Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	79-01-6
' Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0105	KLB	75-01-4
¹ 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	106-46-7
³ 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	121-14-2
³ Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	67-72-1









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Project Report: 102380

Client: EET1

Results for Project 102380

09350 Soil Cuttings	Former Lar	edo AFB	s	olid Taken: 05/20/1999	By: Client Re	c:05/26/1999	
arameter	Result	Unit	MAL	Method	Analyzed	Ву	CAS
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	118-74-1
CLP Hexachlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	87-68-3
CLP Nitrobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1641	KLB	87-86-5
CLP Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	110-86-1
CLP Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	1319-77-3
CLP 2.4.6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	88-06-2
CLP 2,4,5-Trichlorophenol (400)		mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	95-95-4

Sample Preparation Steps for Project 102380

9349 Purge/Decor	n Water Form	er Laredo AFB	Liquid Aqueous Taken: 05/2	20/1999 By: Clien	
nrameter	Result	Unit	Method	Analyzed	Ву
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	BAAJ
L Jatile Extraction	1.5% SOLID		EPA Method 1311	05/28/1999 1540) GPJ
CLP Exception: Non-Volatile	AQU/SOL EXT		EPA Method 1311	05/27/1999 1705	GPJ
etals Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830	PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
drocarbon Liquid Extraction	100/380	mL/mL	EPA Method 3510 *MC	DD 06/03/1999 1450	MAM
stals Digestion - TCLP 7470	150/10 A/S	mL /mL	EPA Method 7470A	06/01/1999 0900	WBM
tals Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/02/1999 0900	WBM
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0546	KLB
trification of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1642	KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0010	KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1519	KLB
x This Report AS Soon As	FAXED		FAX	06/10/1999 16:2	9 KEK
activity Distillation	100/10 A/B	mL/g	SW 846 7.3.3	05/26/1999 1700) HAM
9350 Soil Cuttings	s Former Lar	edo AFB	Solid Taken: 05/20/1999	By: Client Re	c:05/26/1999
rameter	Result	Unit	Method	Analyzed	Ву
ttle Temperature on Receipt	4	Degrees C		05/26/1999 1318	B AAJ
LP ZHE Volatile Extraction	100,0% SOLID		EPA Method 1311	05/28/1999 1540) GPJ
LP Extraction: Non-Volatile	SOL EXT #1		EPA Method 1311	05/27/1999 1709	GPJ
als Digestion TCLP 3010	50/10 A/S/S	ml/ml	EPA Method 3010A	06/02/1999 0830	PJD
_P Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
LP Liquid-Liquid Extraction	1/100 S	m L/mL	EPA Method 3510	06/03/1999 070	LMB
Sonication Extract.	100/30	m L/g	EPA Method 3550B	06/02/1999 1130	LMB
als uon - TCLP 7470	150/10 A/S/S	m l/ml	EPA Method 7470A	06/01/1999 0900	WBM







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Project Report: 102380

Client: EET1

Sample Preparation Steps for Project 102380

1350 Soil Cuttings	s Former L	aredo AFB	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
ameter	Result	Unit	Method	Analyzed	Ву
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999	0449 KLB
ification of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999	0900 LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999	1716 KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999	0105 KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999	1641 KLB
This Report AS Soon As	FAXED		FAX	06/07/1999	16:53 KEK

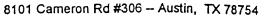
Sample Specific Quality Control/Quality Assurance

Sample Specific Quality Control/Quality Assurance								
349 Purge/Decon Water	Former Lare	do AFB	Liquid Aqueous Taken: 05/20/1999	By: Client	Rec:05/26/1999			
Method 8260B Surrogate/Spi			2/1999 2					
pound	Result	Concentration	%Recovery					
romofluoromethane	42.1	40.0	110					
uene-d8	40.9	40.0	100					
mofluorobenzene-SURR	41.3	40.0	100					
Method 8260B Matrix Spike	on Sample 4	06/02/1	999 2					
bnuoc	Recovery (Concentr	ation					
P Benzene (Reg. Limit 0.5)	110	50.0						
? Carbon Tetrachloride (.5)	122	50.0						
P Chlorobenzene (Limit 100)	111	50.0						
P Chloroform (Reg. Limit 6.0)	112	50.0						
? 1,2-Dichloroethane (RL .5)	121	50.0						
? 1,1-Dichloroethene (.7)	106	50.0						
? Tetrachloroethylene (.7)	111	50.0						
? Trichloroethylene (.5)	115	50.0						
? Vinyl Chloride (.4)	96.0	50.0						
? MEK (Reg. Limit 200)	85.8	50.0						
Method 8260B Internal Stan	dard Areas o	on Sample 409349	06/02/1999 2					
oound IS	3 Area	CCC IS Area	Status					
:afluorobenzene-ISTD	168800	174400						
-Dífluorobenzene-ISTD	244800	252800						
cobenzene-d5-ISTD	204300	214400						
-Dichlorobenzene-d4-ISTD	91360	96680						
Method 8270C Surrogate/Spi	ke on Sample	409349 06/0	4/1999 1					
oound	Result	Concentration	*Recovery					
,6-Tribromophenol	91.4	100	91					
luorophenol-SURR	50.4	100	50					
nol-d6-SURR	34.1	100	34					
robenzene-d5-SURR	35.1	50.0	70					
luorobiphenyl-SURR	35.7	50.0	71					





MPLETE SERVICE LAB





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Project Report: 102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

409349 Purge/Decon Water	Former Lare	do AFB	Liquid Aqueous Taken: 05/2	20/1999 By:	Client Rec:05/26/1999
409349 Purge/Decon Water 1-Terphenyl-d14-SURR	57.2	50.0	110		
4-lerphenyr-dr4-book					
EPA Method 8260B Matrix Spike	on Sample 40	9349 06/04/	1999 1		
Compound	Recovery (%		ration		
CLP Bis(2-chloroethyl) ether	84.5	100			
CLP 1,4-Dichlorobenzene	68.4	100			
CLP 2,4-Dinitrotoluene (.13)	83.7	100			
CLP Hexachlorobenzene (.13)	88.8	100			
CLP Hexachlorobutadiene (.5)	71.6	100			
CLP Hexachlorethane (Limit 3)	73.2	100			
CLP Nitrobenzene (Limit 2)	86.4	100			
CLP Pentachlorophenol (100)	63.7	100			
CLP 2,4,6-Trichlorophenol (2)	69.7	100			
CLP 2,4,5-Trichlorophenol (400	71.0	100			
'CLP Total Cresols (Reg Lim 200		300			
CI dine (Reg. Limit 5)	68.1	100			
:PA Method 8270C Internal Sta	ndard Areas o	n Sample 40934	9 06/04/1999 1		
	S Area	CCC IS Area			
.4-Dichlorobenzene-d4-ISTD	232000	238300			
aphthalene-d8-ISTD	885700	880200			
cenaphthene-d10-ISTD	478400	473900			
henanthrene-d10-ISTD	682300	683700			
hrysene-d12-ISTD	371300	447900			
erylene-d12-ISTD	277400	331000			
GC Surr.) Surrogate/Spike on	Sample 40934	9 06/02/199	9 1		
ompound	Result	Concentration	<pre>%Recovery</pre>		
,4-Dichlorophenylacetic Acid	122	100	120		
, 4 · Dieniolophon, 1 · · · ·					
GC Surr.) Matrix Spike on Sam	mple 409349	06/02/1999	1		
ompound	Recovery (%) Concent	ration		
,4,5-TP (Silvex)	102	100			
,4 Dichlorophenoxyacetic acid	119	100			
	409349 06/	02/1999 1			
	Result	Concentration	*Recovery		
<pre>ompound ibutylchlorendate (GC Surr)</pre>	56.2	100	56		
etrachloro-m-Xylene (GC Surr.)	54.8	100	55		
ectachioto-maxyrene (50 out-					
C Matrix Spike on Sample 409.	349 06/02/	1999 1			
ompound	Recovery (%) Concent	ration		
am (Lindane)	67.2	100			



ptachlor



61.9



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Project Report: 102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

3349 Purge/Decon Water	Former Lare	do AFB	Liquid Aqueous Taken: 05	/20/1999 B	y: Client Rec:05/26/1999
tachlor epoxide	72.9	100			
hoxychlor	75.0	100			
350 Soil Cuttings Forme	r Laredo AEF	2	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
_	ike on Sample		2/1999 2	by. Cherk	Rec.03/26/1999
	Result	Concentration	%Recovery		
pound romofluoromethane	42.6	40.0	110		
	41.0	40.0	100		
uene-d8	42.4	40.0			
mofluorobenzene-SURR	42.4	40.0	110		
Method 8260B Matrix Spike	on Sample 40	9350 06/02/1	999 2		
pound	Recovery (%) Concentra	ation		
P Benzene (Reg. Limit 0.5)	112	50.0			
P Carbon Tetrachloride (.5)	123	50.0			
P Chlorobenzene (Limit 100)	113	50.0			
P Chloroform (Reg. Limit 6.0)	116	50.0			
P 1.2-Dichloroethane (RL .5)	124	50.0			
P 1,1-Dichloroethene (.7)	110	50.0			
P Tetrachloroethylene (.7)	109	50.0			
? Trichloroethylene (.5)	113	50.0			
P Vinyl Chloride (.4)	97.8	50.0			
? MEK (Reg. Limit 200)	94.8	50.0			
Method 8260B Internal Stan	dard Areas on	Sample 409350	06/02/1999 2		
pound IS	Area	CCC IS Area	Status		
:afluorobenzene-ISTD	166500	174400			
-Difluorobenzene-ISTD	239000	252800			
robenzene-d5-ISTD	203600	214400			
-Dichlorobenzene-d4-ISTD	89460	96680	•		
Method 8270C Surrogate/Spi	ke on Sample	409350 06/04	/1999 1		
ound	Result	Concentration	<pre>%Recovery</pre>		
6-Tribromophenol	80.8	100	81		
.uorophenol-SURR	49.7	100	50		
iol-d6-SURR	33.4	100	33		
obenzene-d5-SURR	33.3	50.0	67		
.uorobiphenyl-SURR	31.5	50.0	63		
erphenyl-d14-SURR	57.9	50.0	120		
Method 8260B Matrix Spike		350 06/04/19	99 1		
ound	Recovery (%)	Concentra	tion		
'Bis(2-chloroethyl) ether	82.5	100		•	





100

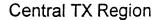
100

Bis(2-chloroethyl) ether1,4-Dichlorobenzene

2,4-Dinitrotoluene (.13)

60.2

81.7





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Project Report:

102380

Client: EET1

Sample Specific Quality Control/Quality Assurance

409350 Soil Cuttings Forme	er Laredo AF	В	Solid Taken: 05/20/1999	By: Client	Rec:05/26/1999
TCLP Hexachlorobenzene (.13)	88.1	100			
TCLP Hexachlorobutadiene (.5)	59.1	100			
TCLP Hexachlorethane (Limit 3)	64.2	100			
TCLP Nitrobenzene (Limit 2)	83.8	100			
TCLP Pentachlorophenol (100)	63.4	100	•		
TCLP 2,4,6-Trichlorophenol (2)	67.5	100			
TCLP 2,4,5-Trichlorophenol (400) 69.8	100			
TCLP Total Cresols (Reg Lim 200) 62.0	300			
TCLP Pyridine (Reg. Limit 5)	50.0	100			
EPA Method 8270C Internal Sta	ndard Areas	on Sample 409350	06/04/1999 1		
Compound	S Area	CCC IS Area	Status		
1,4-Dichlorobenzene-d4-ISTD	235900	238300			
Naphthalene-d8-ISTD	903500	880200			
Acenaphthene-d10-ISTD	473200	473900			
Phr Trene-d10-ISTD	666200	683700			
chid12-ISTD	352300	447900			
Perylene-d12-ISTD	261200	331000			
(GC Surr.) Surrogate/Spike on	Sample 40935	06/02/1999	1		
Compound	Result	Concentration	*Recovery		
?,4-Dichlorophenylacetic Acid	117	100	120		
GC Surr.) Matrix Spike on Sam	ple 409350	06/02/1999	1		
:ompound	Recovery (() Concentr	ation		
:,4,5-TP (Silvex)	94.4	100			
,4 Dichlorophenoxyacetic acid	109	100			
C Surrogate/Spike on Sample 4	09350 06/	02/1999 1			
ompound	Result	Concentration	<pre>%Recovery</pre>		
ibutylchlorendate (GC Surr)	81.2	100	81		
etrachloro-m-Xylene (GC Surr.)	81.3	100	81		
C Matrix Spike on Sample 4093	50 06/02/	1999 1			
⇒ mpound	Recovery (%) Concentra	ation		
<pre>imma-BHC (Lindane)</pre>	97.5	100			
drin	125	100			
*ptachlor	93.1	100			
ptachlor epoxide	100	100			
thoxychlor	138	100			







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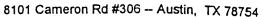
Project Report: 102380

Client:

. Method 8260B Blank	06/02/1999	2		
pound	Result			
zene	ИD			
orobenzene	ИD			
-Dichloroethylene	ND			
hylene Chloride	ND			
uene	ИD			
chloroethylene	ИD			
Method 8260B Instrumen	t Tune 06/	02/1999 2		
s Reference M	ass Min Abun	dance Max Abunda	nce Result	Status
Mass 50 95	15.0	40.0	20.2	PASS
Mass 75 95	30.0	60.0	47.8	PASS
Mass 95 95	100	100	100.0	PASS
Mass 96 95	5.00	9.00	6.3	PASS
Mass 173 174	0	2.00	0.0	PASS
Mass 174 95	50.0	100	70.9	PASS
Mass 175 174	5.00	9.00	8.6	PASS
Mass 176 174	95.0	101	97.9	PASS
Mass 177 176	5.00	9.00	6.6	PASS
Instrument Calibration Che	eck 06/02/1	.999 2		
oound	Max %Rel. St	d. %Deviation	Statu	ıs
oroform	20.0	-9.8	PASS	
-Dichloroethylene	20.0	-4.7	PASS	
-Dichloropropane	20.0	-9.5	PASS	
/l benzene	20.0	-12.5	PASS	
iene	20.0	-7.5	PASS	
/l Chloride	20.0	9.8	PASS	
Method 8260B Instrument	. System Perfo	rmance Check 0	6/02/1999	2
⇒ound Min Re	sponse Factor	Response Fact	or Statu	s
noform	.1010	0.279	PASS	
∍robenzene	.3000	1.217	PASS	
romethane (Methyl Chloric		0.555	PASS	
-Dichloroethane	.1000	1.105	PASS	
2,2-Tetrachloroethane	. 3000	1.596	PASS	
Method 8260B Matrix Spik	e/Duplicate o	n Sample 409602	06/02/199	
ound Fi	rst (%)	Second (%)	<pre>%Differe</pre>	nce
ene	109	111	1.8	
robenzene	113	115	1.8	
Dichloroethylene	107	109	1.9	
iene	110	112	1.8	
shloroethylene	110	113	2.7	









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Client:

Organic Quality Control/Quality Assurance for Project 102380

IPA Method	9270C	Instrument Tu	ine 06/04/1999	9	1		
1 a ss		Reference Mass	Min Abundance	Max	Abundance	Result	Status
OFTPP Mass	51	198	30.0		60.0	59.1	PASS
OFTPP Mass	68	69	0		2.00	0.0	PASS
OFTPP Mass	69	198	0		100	62.8	PASS
OFTPP Mass	70	69	О		2.00	0.0	PASS
OFTPP Mass	127	198	40.0		60.0	51.2	PASS
FTPP Mass	197	198	0		1.00	0.0	PASS
)FTPP Mass	198	198	100		100	100.0	PASS
PTPP Mass	199	198	5.00		9.00	6.9	PASS
FTPP Mass	275	198	10.0		30.0	21.3	PASS
FTPP Mass	365	198	1.00		100	2.9	PASS
FTPP Mass	441	443	0		100	81.5	PASS
FTPP Mass	442	198	40.0		100	59.7	PASS
FTPP Mass	443	442	17.0	:	23.0	19.2	PASS

Instrument Calibration Check	06/04/1999	1	
om Ma	x %Rel. Std.	<pre>%Deviation</pre>	Status
ice is ane	30.0	-4.2	PASS
enzo(a)pyrene	30.0	-3.0	PASS
-Chloro-3-methylphenol	30.0	-8.0	PASS
,4-Dichlorobenzene	30.0	-2.7	PASS
,4-Dichlorophenol	30.0	-3.9	PASS
i-n-octylphthalate	30.0	-17.0	PASS
luoranthene	30.0	3.6	PASS
<pre>exachlorobutadiene</pre>	30.0	-21.0	PASS
-Nitrophenol	30.0	-0.8	PASS
-Nitrosodiphenylamine (as DPA)	30.0	-7.7	PASS
entachlorophenol	30.0	0.2	PASS
henol	30.0	0.4	PASS
,4,6-Trichlorophenol	30.0	-2.4	PASS

trument	Syster	n Performai	nce Check	06/04/1	1999 :	1
Min Re	sponse	Factor	Response	Factor	Status	
	. 05	500	0.11	. 4	PASS	
ene	. 05	500	0.26	59	PASS	
	. 05	500	0.28	32	PASS	
ine	. 05	500	0.90	7	PASS	
	Min Re ene	Min Response .09 ene .09	Min Response Factor .0500 ene .0500 .0500	.0500 0.11 ene .0500 0.26 .0500 0.28	Min Response Factor Response Factor	Min Response Factor Response Factor Status .0500 0.114 PASS ene .0500 0.269 PASS .0500 0.282 PASS

A Method 8151A Blank 06/02/1999

Result mpound

ND 4,5-TP (Silvex)

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4 Dichlorophenoxyacetic acid

8151A Standard 06/02/1999

Concentration Result npound

*Difference









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Client:

Organic Quality Control/Quality Assurance for Project 102380

1,5-TP (Silvex)	150	157	4.7
# Dichlorophenoxyacetic acid	150	147	-2.0
A Method 8081A Blank 06/0	2/1999 1		
npound	Result		
irin	ND		
<pre>pha-BHC(hexachlorocyclohexane)</pre>	ND		
:a-BHC(hexachlorocyclohexane)	ND		
.ta-BHC(hexachlorocyclohexane)	ND		
wma-BHC (Lindane)	ND		
ordane	ND		
DDD	ND		
-DDE	ND		
-DDT	ND		
·ldrin	ND		
osulfan I (alpha)	ND		
osulfan II (beta)	ND		
osulfan sulfate	ND		
rin	ND		
rin aldehyde	ND		
tachlor	ND		
tachlor epoxide	ND		
aphene	ND		
noxychlor	ND		
Method 8081A Standard 06	/02/1999	1	

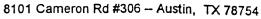
Method 8081A Standard 0	6/02/1999	1	
concent Concent	ration	Result	%Difference
rin	100	98.5	-1.5
na-BHC(hexachlorocyclohexane)	100	99.6	-0.40
<pre>1-BHC(hexachlorocyclohexane)</pre>	100	91.1	-8.9
<pre>ta-BHC(hexachlorocyclohexane)</pre>	100	99.4	-0.60
na-BHC (Lindane)	100	97.5	-2.5
-DDD	100	97.1	-2.9
-DDE	100	99.6	-0.40
-DDT	100	96.7	-3.3
Edrin	100	99.7	-0.30
sulfan I (alpha)	100	98.6	-1.4
sulfan II (beta)	100	95.9	-4.1
sulfan sulfate	100	96.5	-3.5
rin .	100	99.3	-0.70
in aldehyde	100	94.4	-5.6
lachlor	100	98.2	-1.8
achlor epoxide	100	98.7	-1.3
noxychlor	100	91.5	-8.5

05008

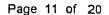




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Project Report: 102380

Client:

	Flash Point (Reg. Limit 140.0 F)		(Ar	(Analyzed: 05/28/1999 1515 PRE Verified: 06/02/1999 09:03 NGT)			
Sample	Туре		Result	Value	Unit	Percent	
•	Stand	dard	84	80	Degrees F	5.0	
409123	Dupli	icate	132	129	Degrees F	1.5	
	TCLP Silver (Reg	. Limit 5.0	0)	(Ar	nalyzed: 06/08/1999 1139 \	WOB Verified: 06/08/1999 12:17 W	/JP)
Sample	Туре		Result	Value	Unit	Percent	
•	Stand	dard	1.91	2.00	ppm	-4.5	
	Stand	dard	0.962	1.00	ppm	-3.8	
	Stand	dard	0.946	1.00	ppm	-5.4	
409349	Direc	t SPK		101	ppm	101	
409349	Direc	t SPK		98	ppm	98	
	TCLP Silver (Reg	. Limit 5.0))	(An	nalyzed: 06/02/1999 1300 \	WOB Verified: 06/03/1999 14:50 S	AH)
Sample .	Туре	•	Result	Value	Unit	Percent	
	Stand	dard	0.0993	0.100	ppm	-0.7	
L	Stand	dard	0.310	0.300	ppm	3.3	
•	Stand	dard	0.308	0.300	ppm	2.7	
	Stand	dard	0.304	0.300	ppm	1.3	
	Stand	dard	0.301	0.300	ppm	0.3	
	Stand	dard	0.306	0.300	ppm	2.0	
	Stand	dard	0.297	0.300	ppm	-1.0	
	Stand	dard	0.300	0.300	ppm	0.0	
	Stand	iard	0.102	0.100	ppm ·	2.0	
	Stand	lard ·	0.321	0.300	ppm	7.0	
	Stand	lard	0.321	0.300	ppm	7.0	
	Stand	lard	0.319	0.300	ppm	6.3	
	Stand	lard	0.319	0.300	ppm	6.3	
	Stand	lard	0.318	0.300	ppm	6.0	
	Stand	lard	0.321	0.300	ppm	7.0	
	LCS	+	0.0616	0.100	ppm	-38.4	
	LCS		0.0155	0.0200	ppm	-22.5	
	LCS	(0.0150	0.0200	ppm	-25.0	
	Blank	,	<0.0100		ppm		
	Blank		<0.0500		ppm		
	Blank		<0.0500		ppm		
093 16	Spike			0.100	ppm	71	
09333	Spike			0.100	ppm	66	
79334	Spike			0.100	ppm	64	
19 33 5	Spike			0.100	ppm	66	
)or ,	Spike			0.100	ppm	67	
<u>,</u>).	Spike			0.100	ppm	67	05000
79350	Spike			0.100	ppm	67	05009







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Client:

	TCLP Silver (Reg. Limi	t 5.0)		(Analyzed: 06/02/19	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
ıple	Туре	Result	Value	Unit	Percent
350	Spike		0.100	ppm	61
374	Spike		0.0200	ppm	64
374	Spike		0.0200	ppm	62
375	Spike		0.100	ppm	61
376	Spike		0.100	ppm	62
377	Spike		0.100	ppm	63
378	Spike		0.100	ppm	63
420	Spike		0.100	ppm	46
122	Spike		0.100	ppm	57
561	Spike		0.100	ppm	59
	TCLP Arsenic (Reg. Lin	nit 5.0)		(Analyzed: 06/02/19	99 1300 WOB Verified: 06/03/1999 14:50 SAH)
ıple	Type	Result	Value	Unit	Percent
,,,,,,	Standard	0.0995	0.100	ppm	-0.5
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.295	0.300	ppm	-1.7
	Standard	0.321	0.300	ppm	7.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.316	0.300	ppm	5.3
	Standard	0.317	0.300	ppm	5.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.315	0.300	ppm	5.0
	LCS	0.482	0.500	ppm	-3.6
	LCS	0.0941	0.100	ppm	-5.9
	Blank	<0.100		ppm	>
	Blank	<0.500		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	100
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	99
349	Spike		0.500	ppm	99
350	Spike		0.500	ppm	99
350	Spike		0.500	ppm	95
374	Spike		0.100	ppm	91
374	Spik e		0.100	ppm	88









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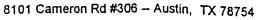
Client:

	TCLP Arsenic (Reg. Lin	nit 5.0)		(Analyzed: 06/02/1	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sam ple	Туре	Result	Value	Unit	Percent	
093 75	Spike		0.500	ppm	102	
:093 76	Spike		0.500	ppm	102	
09377	Spike		0.500	ppm	101	
093 78	Spike		0.500	ppm	103	
	TCLP Barium (Reg. Lim	it 100.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
:am ple	Туре	Result	Value	Unit	Percent	
	Standard	0.0993	0.100	ppm	-0.7	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.310	0.300	ppm	3.3	
	Standard	0.304	0.300	ppm	1.3	
	Standard	0.296	0.300	ppm	-1.3	
	Standard	0.312	0.300	ppm	4.0	
	Standard	0.304	0.300	ppm	1.3	
	Standard	0.311	0.300	ppm	3.7	
•	Standard	0.103	0.100	ppm	3.0	
	Standard	0.320	0.300	ppm	6.7	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.315	0.300	ppm	5.0	
	Standard	0.318	0.300	ppm	6.0	
	LCS	0.433	0.500	ppm	-13.4	
	LCS	0.106	0.100	ppm	6.0	
	LCS	0.105	0.100	ppm	5.0	
	Blank	<0.0100		ppm		
	Blank	<0.0500		ppm		
	Blank	0.086		ppm		
19316	Spíke		0.500	ppm	101	
9333	Spike		0.500	ppm	94	
19334	Spike		0.500	ppm	97	
1 93 35	Spike		0.500	ppm	96	
9349	Spike		0.500	ppm	95	
334 9	Spike		0.500	ppm	96	
9350	Spike		0.500	ppm	97	
93 50	Spike		0.500	ppm	92	
3374	Spike		0.100	ppm	80	
3374	Spike		0.100	ppm	58	
93* 📝	Spike		0.500	ppm	95	
93 .	Spike		0.500	ppm	95	N 1 1
					050	011

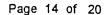




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Client:

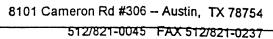


	TCLP Barium (Reg. Lim	nit 100.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)
πρle	Туре	Result	Value	Unit	Percent
377	Spike		0.500	ppm	95
378	Spike		0.500	ppm	96
1420	Spike		0.500	ppm	98
1422	Spike		0.500	ppm	96
561	Spike		0.500	ppm	99
	TCLP Cadmium (Reg. L	imit 1 0\		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)
,	Type	Result	Value	Unit	Percent
nple	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spike		0.250	ppm	96
334	Spik e		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spi ke		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95





MPLETE SERVICE LAB





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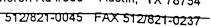
Client:

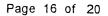
	TCLP Cadmium (Reg. L	_imit 1.0)		(Analyzed: 06/02/	(1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sample	Туре	Result	Valu e	Unit	Percent	
4093 76	Spike		0.250	ppm	80	
409377	Spike		0.250	ppm	94	
4093 78	Spike		0.250	ppm	96	
4094 20	Spike		0.250	ppm	93	
409 422	Spike		0 .250	ppm	95	
409561	Spike		0 .250	ppm	97	
	TCLP Chromium (Reg.	Limit 5.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
Sample	Туре	Result	Value	Unit	Percent	
oup.	Standard	0.0998	0.100	ppm	-0.2	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.310	0.300	ppm	3.3	
	Standard	0.300	0.300	.ppm	0.0	
	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.314	0.300	ppm	4.7	
	Standard	0.313	0.300	ppm	4.3	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.318	0.300	ppm	6.0	
	LCS	0.485	0.500	ppm	-3.0	
	LCS	0.0980	0.100	ppm	-2.0	
	Blank	<0.0200		ppm		
	Blank	<0.100		ppm		
0 9316	Spike		0.500	ppm	103	
09333	Spike		0.500	ppm	98	
093 34	Spike		0.500	ppm	98	
393 35	Spike		0.500	ppm	102	
093 49	Spike		0.500	ppm	98	
0934 9	Spike		0.500	ppm	98	
0935 0	Spike		0.500	ppm	98	
9350	Spike		0.500	ppm	92	
9374	Spike		0.100	ppm	100	
9374	Spike		0,100	ppm	86	
937 5	Spike		0.500	ppm	103	
∋937 6	Spike		0.500	ppm	98	
091	Spike		0.500	ppm	97	
19 . -	Spike		0.500	ppm	100 050	13
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Client:

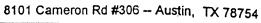
Price		TCLP Mercury (Reg	. Limit 0.2)		(Analyzed: 06/02/	1999 1412 WOB Verified: 06/03/1999 12:14	NGT)
Standard	ple			Value	Unit	Percent	
Standard 4.80 5.00 ppb 4.0 4.0 4.0 4.83 5.00 ppb 3.4 4.0 4.83 5.00 ppb 3.5 4.0 4.5 4.5 5.00 ppb 5.0 5.0 4.5	•		d 23.7	25.0	ррь	-5.2	
Standard 4.83 5.00 ppb -3.4		Standard	4.87	5.00	ppb	-2.6	
Standard 4.75 5.00 ppb -5.00 -5.00 ppb -9.50		Standard	4.80	5.00	ppb	-4.0	
CCS		Standard	4.83	5.00	ppb	-3.4	
		Standard	4.75	5.00	ppb	-5.0	
		LCS	9.05	10.0	ppb	-9.5	
Blank		LCS	10.5	10.0	ppb	5.0	
Blank Spike 10.0 Spib 97 101		Blank	<0.10		ppb		
49			<0.15		ppb		
78 Spike 10.0 ppb 93 20 Spike 10.0 ppb 93 20 Spike 10.0 ppb 94 22 Spike 10.0 ppb 100 61 Spike 10.0 ppb 91 52 Spike 10.0 ppb 76 52 Spike 10.0 ppb 76 52 Spike 10.0 ppb 76 52 Spike 10.0 ppb 2.6 Standard 5.13 5.00 ppb 2.6 Standard 5.28 5.00 ppb 4.6 Standard 5.03 5.00 ppb 4.6 LCS 9.38 10.0 ppb 6.2 49 Spike 10.0 ppb 100 49 Spike 10.0 ppb 102 50 Spike 10.0 ppb 52 <td< th=""><th>49</th><th></th><th></th><th>10.0</th><th>ppb</th><th>97</th><th></th></td<>	49			10.0	ppb	97	
78				10.0	ppb	101	
20				10.0	ppb	93	
22				10.0	ppb	94	
51				10.0	ppb	100	
				10.0	ppb	91	
Spike				10.0	ppb	76	
Standard Standard		Spike		10.0	ppb	80	
Standard 5.13 5.00 ppb 2.6			24.7	25.0	ppb	-1.2	
Standard S.23 S.00 ppb 4.6 Standard S.08 S.00 ppb 1.6 Standard S.08 S.00 ppb 6.2 Standard S.08 S.00 ppb 6.2 S.00 Spike S.015 Ppb S.016 S.015 S.016 S.0				5.00	ppb	2.6	
Standard S.23 S.00 ppb 4.6 Standard S.08 S.00 ppb 1.6 LCS 9.38 10.0 ppb -6.2 Blank <0.15 ppb 34 Spike 10.0 ppb 96 49 Spike 10.0 ppb 100 50 Spike 10.0 ppb 102 50 Spike 10.0 ppb 101 74 Spike 10.0 ppb 52 77 Spike 10.0 ppb 52 77 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 95 2 Spike 10.0 ppb 97 102 Spike 10.0 ppb 97 104 Type Result Naliyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH 106 Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3		Standard	5.28	5.00	ppb	5.6	
LCS 9.38 10.0 ppb -6.2			5.23	5.00	ppb	4.6	
Blank Spike 10.0 ppb 96		Standard	5.08	5.00	ppb	1.6	
10.0 ppb 96 96 96 96 99 99 99 9		LCS	9.38	10.0	ppb	-6.2	
Spike 10.0 ppb 100		Blank	<0.15		ppb		
Spike	34	Spike		10.0	ppb	96	
50 Spike 10.0 ppb 101 74 Spike 10.0 ppb 52 77 Spike 10.0 ppb 95 52 Spike 10.0 ppb 95 52 Spike 10.0 ppb 93 42 Spike 10.0 ppb 102 42 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Ide TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Total Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Total Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Total Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Total Lead (Reg. Limit 5.0) Only 10.0 Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0		Spike		10.0	ppb	100	
74 Spike 10.0 ppb 52 77 Spike 10.0 ppb 95 52 Spike 10.0 ppb 95 52 Spike 10.0 ppb 93 42 Spike 10.0 ppb 102 42 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Ide Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3	50	Spike		10.0	ppb	102	
Spike	50	Spike		10.0	ррь	101	
52 Spike 10.0 ppb 95 52 Spike 10.0 ppb 93 42 Spike 10.0 ppb 102 42 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Interval of the colspan="6">Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3	⁷ 4	Spike		10.0	ppb	52	
52 Spike 10.0 ppb 93 42 Spike 10.0 ppb 102 42 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Olie Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3	77	Spike		10.0	ppb	95	
52 Spike 10.0 ppb 93 42 Spike 10.0 ppb 102 42 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Ille Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3	52	Spike		10.0	ppb	95	
12 Spike 10.0 ppb 102 12 Spike 10.0 ppb 97 TCLP Lead (Reg. Limit 5.0) (Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH) Nie Type Result Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3		Spike		10.0	ppb	93	
TCLP Lead (Reg. Limit 5.0) Tole Type Result Standard 0.0986 0.100 ppm 0.300 ppm ppm 0.300 ppm ppm 0.300 ppm	12	Spike		10.0	ppb	102	
Die Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3		Spike		10.0	ppb	97	
Die Type Result Value Unit Percent Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3		TCLP Lead (Reg. Lin	nit 5.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 S	SAH)
Standard 0.0986 0.100 ppm -1.4 Standard 0.310 0.300 ppm 3.3	ıle			Value	· ·		
	,,,,				ppm	-1.4	
		Standard	0.310	0.300	ppm	3.3	
Ottandard 5.515 5.515 pp 5.5		Standard	0.310	0.300	ppm	3.3	
Standard 0.309 0.300 ppm 3.0			0.309	0.300	ppm	3.0	
Standard 0.304 0.300 ppm 1.3		Standard	0.304	0.300	ppm	1.3	



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Client:

	TCLP Lead (Reg. Limit	5.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH	1)
Sample	Туре	Result	Value	Unit	Percent	
	Standard	0.317	0.300	ppm	5.7	
	Standard	0.309	0.300	ppm	3.0	
	Standard	0.315	0.300	ppm	5.0	
	Standard	0.103	0.100	ppm	3.0	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.321	0.300	ppm	7.0	
	Standard	0.318	0.300	ppm	6.0	
	Standard	0.323	0.300	ppm	7.7	
	Standard	0.322	0.300	ppm	7.3	
	Standard	0.323	0.300	ppm	7.7	
	LCS	0.449	0.500	ppm	-10.2	
	LCS	0.102	0.100	ppm	2.0	
	LCS	0.101	0.100	ppm	1.0	
	Blank	<0.0500		ppm		
	Blank	<0.250		ppm		
	Blank	<0.250		ppm		
093 16	Spike		0.500	ppm	105	
)93 33	Spike `		0.500	ppm	102	
09334	Spike		0.500	ppm	103	
)93 35	Spike		0.500	ppm	105	
)9 349	Spike		0.500	ppm	103	
)9 349	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	104	
)93 50	Spike		0.500	ppm	99	
)9 374	Spike		0.100	ppm	134	
)9374	Spike		0.100	ppm	84	
9375	Spike		0.500	p pm	106	
9376	Spike		0.500	ppm	102	
9377	Spike		0.500	ppm	103	
9378	Spike		0.500	ppm	103	
9420	Spike		0.500	ppm	104	
9422	Spike		0.500	ppm	102	
9561	Spike		0.500	ppm	104	
	TCLP Selenium (Reg. L	imit 1.0)		(Analyzed: 06/02/1	999 1300 WOB Verified: 06/03/1999 14:50 SAH)	
mple	Туре	Result	Value	Unit	Percent	
•	Standard	0.0980	0.100	ppm	-2.0	
	Standard	0.302	0.300	ppm	0.7	
£	Standard	0.311	0.300	ppm	3.7	
	Standard	0.303	0.300	ppm	1.0	5015







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Client:

	TCLP Selenium (Reg.	Limit 1.0)		(Analyzed: 06/02/	1999 1300 WOB Verified: 06/03/1999 14:50 SAH)
nple	Type	Result	Value	Unit	Percent
•	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
316	Spike		0.500	ppm	102
333	Spike	•	0.500	ppm	98
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
3 49	Spike		0.500	ppm	98
49	Spike		0.500	ppm	100
50	Spike		0.500	ppm	98
50	Spike		0.500	ppm	96
:74	Spike		0.100	ppm	92
74	Spike		0.100	ppm	92
75	Spike		0.500	ppm	102
76	Spike		0.500	ppm	99
77	Spike		0.500	ppm	99
78	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107
	Reactivity Cyanide (RL	250)		(Analyzed: 05/28/19	999 1500 RSV Verified: 06/02/1999 11:28 SAH)
ple	Type	Result	Value	Unit	Percent
μισ	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3





3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

3.1 Common Acronyms and Abbreviations

COC Chain-of-Custody

DoD Department of Defense

DQO Data Quality Objective

FD Field Duplicate

EB Equipment Blank

EM Engineering Manual

EPA Environmental Protection Agency

HTRW Hazardous, Toxic, Radioactive Waste

ICP Inductively Coupled Plasma

IDL Instrument Detection Limit

IWTP Industrial Waste Treatment Plant

LAFB Laredo Air Force Base

LB Laboratory Blank

LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate

MDL Method Detection Limit

MS/MSD Matrix Spike/Matrix Spike Duplicate

QA/QC Quality Assurance/Quality Control

RL Reporting Limit

RPD Relative Percent Difference

SGR Shotgun Range

TB Trip Blank

USACE United States Army Corps of Engineers

3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's \rightarrow J's)
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

4. Chain of Custody Synopsis

	Chemical	Analytical Met	thods		
Sample ID: SGRBHSO-	Matrix	Time	Туре	Lead SW6010	SPLP/Lead SW1312/SW6010
	Samples Col	lected on 21 M	1ay 1999		
001000N1	SO	0836	N	X	X ¹
001002N1	SO	0842	N	X	
002000N1	SO	0903	N	X	X ¹
002002N1	SO	0914	N	X	
003000N1	SO	0934	N	X	anne dan gant da san da san da san da san da san da san da san da san da san da san da san da san da san da sa
003002N1	SO	0940	N	X	
004000N1	SO	0958	N	X	X ¹
004002N1	SO	1004	N	X	
005000N1	SO	1022	N	X	X ¹
005002N1	SO	1030	N	X	No terrorgene de la constitución (son de la constitución de la constit
006000N1	SO	1128	N	X	
006000FD1	SO	1128	FD	X	X ¹
006002N1	SO	1135	N	X	William Committee and the second of the seco
006002FD1	so ·	1135	FD	X	
007000N1	SO	1155	N	X	100 Bald Bald Bald Bald Bald Bald Bald Bald
007002N1	SO	1200	N	X	
008000N1	SO	1358	N	X	
008002N1	SO	1415	N	X	
009000N1	SO	1435	N	X	
009002N1	SO	1500	N	X	
010000N1	so	1515	N	×	
010000FD1	SO	1515	FD	X	
010002N1	so	1522	N	X	
011000N1	SO	1538	N	X	
011002N1	so	1545	N	X	
012000N1	so	1605	N	×	

Chemical Analytical Methods					
Sample ID: SGRBHSO-	Matrix	Time	Туре	Lead SW6010	SPLP/Lead SW1312/SW6010
012002N1	so	1610	N	X	
SGRBHWQ012000EB1	WQ	1600	EB	X	nn i territorio y 2007 il protono principale del presidente del presidente del presidente del presidente del p
	Samples Col	lected on 22	2 May 1999		
013000N1	so	0820	N	Х	
013002N1	so	0830	N	X	941 oo 19 oo ka 1986 da 19 oo dadd 11 da 19 oo dadd 11 da 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 oo 19 o
014000N1	SO	0845	N	X	WHAT HILLS
014002N1	so	0850	N	X	ika melika saha ancara sayah didididi pelikina mendeliki dan pel ikina pengapan yang pengapan sayah saha _{ng 199} ,
015000N1	so	0922	N	X	
015002N1	so	0930	N	X	
SGRBHWQ01500EB1	WQ	0900	EB	X	ement timinimini timi na naj cajandona mie con e ne jeje
	Samples Coll	ected on 24	June 1999		
016000N1	so	1545	N	X ²	X
017000N1	SO	1615	N	X ²	×
018000N1	SO	1645	N	X ²	X
018000MS1	SO	1645	FD	X ²	X

Notes: X - Southwest Laboratory of Oklahoma

FD - Field Duplicate

EB - Equipment Blank

X¹ - Sample re-logged into the laboratory as SDG 39086.

X² - Sample re-logged into the laboratory as SDG 39390.

5. Sample Cross Reference Tables

5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHSO001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHSO002002N1	N
38707.05	SGRBHSO003000N1	N
38707.06	SGRBHS0003002N1	N
38707.07	SGRBHS0004000N1	N
38707.08	SGRBHS0004002N1	N
38707.09	SGRBHS0005000N1	N
38707.10	SGRBHS0005002N1	N
38707.11	SGRBHSO006000N1	N
38707.12	SGRBHSO006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHS0006002FD1	FD
38707.15	SGRBHS0007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHS0010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	. N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHS0010002N1	N
38708.04	SGRBHS0011000N1	N
38708.05	SGRBHS0011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHS0012000N1	N

Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHS0012002N1	N
38708.09	SGRBHS0013000N1	Ν
38708.10	SGRBHSO013002N1	N
38708.11	SGRBHS0014000N1	N
38708.12	SGRBHS0014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHS0015000N1	N
38708.15	SGRBHS0015002N1	N
39086.01	SGRBHSO002000N1	N
39086.02	SGRBHSO004000N1	N
39086.03	SGRBHSO005000N1	. N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	Ν
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHS0017000N1	N
39177.03	SGRBHSO018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHSO016000N1	N
39390 02	SGRBHSO017000N1	N
39390.03	SGRBHSO018000N1	N
39390.04	SGRBHS0018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHS0001000N1 instead of the requested SGRBHS0009000N1.

5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSO001000N1	38707.01	
SGRBHSO001002N1	38707.02	N
SGRBHSO002000N1	38707.03	N
SGRBHSO002002N1	38707.04	N
SGRBHSO003000N1	38707.05	N
SGRBHSO003002N1	38707.06	N
SGRBHSO004000N1	38707.07	N
SGRBHSO004002N1	38707.08	N
SGRBHSO005000N1	38707.09	N
SGRBHS0005002N1	38707.10	N
SGRBHSO006000N1	38707.11	N
SGRBHSO006000FD1	38707.12	FD
SGRBHSO006002N1	38707.13	N
SGRBHSO006002FD1	38707.14	FD
SGRBHSO007000N1	38707.15	N
SGRBHSO007002N1	38707.16	N
SGRBHSO008000N1	38707.17	N
SGRBHSO008002N1	38707.18	N
SGRBHSO009000N1	38707.19	N
SGRBHSO010000N1	38707.20	N
MS from SGRBHSO010000N1	38707.21	MS
MSD from SGRBHSO010000N1	38707.22	MSD
SGRBHSO009002N1	38708.01	N
SGRBHSO010000FD1	38708.02	FD
SGRBHSO010002N1	38708.03	N
SGRBHSO011000N1	38708.04	N
SGRBHS0011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSO012000N1	38708.07	N
SGRBHSO012002N1	38708.08	N
SGRBHSO013000N1	38708.09	N
SGRBHSO013002N1	38708.10	N

Sample ID	Lab Sample ID	Sample Type
SGRBHSO014000N1	38708.11	N
SGRBHS0014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHS0015000N1	38708.14	N
SGRBHS0015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHS0004000N1	39086.02	N
SGRBHSO005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHSO017000N1	39177.02	Ν
SGRBHSO018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHS0016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The !aboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

6. Laredo Air Force Base – Site Investigation -SGR Site

6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

 The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

 The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

 Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	Α

7. Quality Assurance Summary Table

		Holding Time/Calibrations/ Sample Condition	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: OK	Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: 12.6 %D - Flag "J"
		Surrogate Recoveries/Internal Standards/Method Blanks	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Surrogate Recoveries: NA Internal Standards: NA Method Blank: CCB - PB = 2.3 ug/L - no Flags
ssurance ontrol Limits	Shotgun Ranges	LCS/LCSD Recoveries/RPD	LCS: OK	LCS: OK
Quality Control/Quality Assurance Results Outside of Quality Control Limits	Former Laredo Air Force Base Shotgun Ranges	MS/MSD Recoveries/RPD/Sample Duplicate RPD	MS/MSD Recoveries/RPD: All OK Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK
		Associated Samples	SGRBHSO001000N1 SGRBHSO001002N1 SGRBHSO002000N1 SGRBHSO002000N1 SGRBHSO003002N1 SGRBHSO003002N1 SGRBHSO004002N1 SGRBHSO004002N1 SGRBHSO00500N1 SGRBHSO00500N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO00600N1 SGRBHSO0000N1 SGRBHSO0000N1 SGRBHSO00800N1 SGRBHSO00900N1 SGRBHSO00900N1 SGRBHSO00900N1 SGRBHSO01000N1 MSS from SGRBHSO01000N1	SGRBHSO009002N1 SGRBHSO010000FD1 SGRBHSO010002N1 SGRBHSO011000N1 SGRBHSO011002N1 SGRBHWQ012000EB1 SGRBHSO012000EB1
		Analysis/Batch	Lead / SDG 38707	Lead / SDG 38708

		Quality Control/Quality Assurance Results Outside of Quality Control Limits	surance ontrol Limits		
		Former Laredo Air Force Base Shotgun Ranges	hotgun Ranges		
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
	SGRBHSO012002N1 SGRBHSO013000N1 SGRBHSO013002N1 SGRBHSO014000N1 SGRBHSO014002N1 SGRBHWQ015000EB1 SGRBHSO015000N1		_		•
Lead / SPLP Lead SDG 39086	SGRBHSO002000N1 SGRBHSO004000N1 SGRBHSO005000N1 SGRBHSO006000FD1 SGRBHSO001000N1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	rCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Samples received in good condition. Holding Times: OK
Lead / SPLP Lead SDG 39177	SGRBHSO016000N1 SGRBHSO017000N1 SGRBHSO018000N1 SGRBHSO018000MS1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Serial Dilutions: OK Samples received in good condition. Holding Times: OK Calibrations: OK
Lead / SDG 39390	SGRBHSO016000N1 SGRBHSO017000N1 SGRBHSO018000N1 SGRBHSO018000MS1	MS/MSD Recoveries/RPD: All OK Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA Internal Standards: NA Method Blank: no targets detected	Serial Dilutions: OK Samples received in good condition. Holding Times: OK Calibrations: OK Serial Dilutions: OK



Sample Analytical Results

Data Review and Validation	for:	Metals and/	or	Cyani	de	0,	<u>En</u>	only_		
Project Name & Task:	L	AREDO AFB				IW	ΤP			
Project # & Case/SDG:	14	7436.DV.ZZ				387	707			
/	/- 84 6 (6	5010B,7000 Series)	٦	7 200	seri	es [\neg	300 series	SM	3000 series
DAECEE DNE	FSC	Other:				Nui	mh	er of Samples:		
G: 11 OC Sloss ///	11 1	13/14-FDUP, 20/211	6	7 - 1	1/16	191	n	16/2168		
Field QC Samples:///	12	13/17-10ap 1001al	<u> </u>	11/1	0	/_	4 .	2114		
terrened by the man				9//	2,	100	90			
Matrix: ☐ Water ☐ Soil		O ther								
Quality Control	Form	Requirements				Ch		. 1		lags Applied
	#		╄	_`	_		_	ee comments)	(s	ee comments)
Data Pkg Complete (DP)		All required deliverables in pkg.		40K		No*	<u></u>	Not provided	十	Flags Applie
		All samples on COC reported	┼┾	40K	_	No*		N/A	十	Flags Applied
Holding Times (HT)	1	Cyanide 14 day HT met	┼┾	OK	-	No* No*		N/A	┾	Flags Applied Flags Applied
	14, COC	Mercury 28 day HT met	 -	JOK_ OK	_	No*	片	N/A	十	Flags Applie
	 	Other metals 160 day HT met	╬	OK OK		No*	늗	Not provided	十	Flags Applie
Initial Calibration (IC)	14	Min. initial # of levels per method	┼┾	OK		No*		Not provided	L	i inda ubbiic
	raw	Linearity method criteria	┼┾	JOK JOK	-	No*	1-	a Mor brovided		
	14	ICV criteria		FOK	-	No*				Flags Applie
Continuing Calibration (CC)	1	CCV frequency		10K	_	No*			-	i lags Applic
	2	CCV critieria	-	CLOK DOV	H	No*		see blnk wksht	П	Flags Applie
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)		OK	Ħ	No*	\vdash	see blnk wksht	1	, lugo , p pile
ICB and CCB	3	ICB, CCB		Jok	H	No*		J See DILIK MYSHE		
Prep Blank Frequency (PB)	3	1 PB per batch		46K	H	No*			П	Flags Applie
ICP Interference Check (ICS)	5	Method criteria met MS/MSD MS/LD None*		40K	H	No*			十	Flags Applie
MS/MSD or MS/LD	5	The state of the s		4 OK	Ħ	No*			-	_ , , , , , , , , , , , , , , , , , , ,
	6	Recovery Limits: Lab Heth Precision criteria		JOK	H	No*			1	
- Paran	5	Criteria met	╁	ОК	H	No*		N/A	$\dagger T$	Flags Applie
Post Spike Samp. Recov.	6	Criteria met	╁	40K	H	No*		N/A	忙	Flags Applie
Duplicate Samples (LD)	7	Frequency	-	4OK	H	No*	_	N/A	ΤĒ	Flags Applie
LCS (BS) 4 (CS only LCS/LCSD	'	Acceptance criteria met		J OK	H	No*	_		┧ ̄	
	8	Criteria met	芐	ОК	十	No*	_	N/A	T	Flags Applie
Standard Addition ICP Serial Dilution (SD)	9	Criteria met	十十	J OK	1	No*	_	N/A		Flags Applie
Internal Standard (IS)	 	Internal Standards used	廿	ОК	T	No*		N/A		
Sample Evaluations (SAM)	1	All hits within cal. Range	竹	LOK	T	No*		All ND	T	Flags Applie
Sample Evaluations (SAM)	1	Total > Dissolved	Ĭ	Ток	〒	•	•	N/A		Flags Appli
E'-14 Developtor (FD)	1	Precision of native vs Field Dup	廿	ОК	L	No*	_	N/A		Flags Applie
Field Duplicates (FD)		All requirement items may not apply to ever	rv a				_			
• •	mous. 1	in requirement tients may not approprie	,							
Case Narrative Comments:	****							· · · · · · · · · · · · · · · · · · ·		
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1 INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

	HS0001000N1
Name: SOUTHWEST_LAB_OF_OK	Contract:CH2M-OKC
Code: SWOK Case No.: 38707	SAS No.: SDG No.: 38707_
Matrix (soil/water): SOIL_	Lab Sample ID: 38707.01
Torrel (low/med): LOW	Date Received: 05/25/99

Level (low/med): LOW_ % Solids: _87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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		SOUTHWEST_LA	B_OF_	OK		Contract: CH2M-OKC		
σr	Code:	SWOK_	Case	No.:	38707	SAS No.:	 SDG No.:	38707

fatrix (soil/water): SOIL_
Level (low/med): LOW___

; Solids:

LOW___85.3

Lab Sample ID: 38707.02 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	12.8	_		P_
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INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

				HS0002000N1	
T	LAB OF	OK	Contract: CH2M-OKC		

Name: SOUTHWEST_ Case No.: 38707 SAS No.: Code: SWOK___

Matrix (soil/water): SOIL_ Level (low/med):

: SDG No.: 38707_ Lab Sample ID: 38707.03 Date Received: 05/25/99

% Solids:

LOW___92.3

Concentration Units (uq/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	M
7439-92-1	Lead	50.8			P_
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Matrix (soil/water): SOIL_ Lab Sample	HS0002002N1 DG No.: 38707 ID: 38707.04 red: 05/25/99
Concentration Units (ug/L or mg/kg dry weight): N	1G/KG
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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	7.9	_		<u>P</u> _
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CLIENT_ID:_	SGRBHSO002002N1					
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							HSOOC)3000N1
Ĵ	Name ·	SOUTHWEST	LAB OF OK	Contr	act:CH2M-O	KC		
	Code:		Case No.:	38707 S	AS No.:		SDG No.	.: 38707_
		oil/water)			Lab	Sample	ID: 38	3707.05

Level (low/med): % Solids: LOW___91.2 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	7.0			P_
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Comments: CLIENT_ID:	_SGRBHSO003000N1				
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CLIENT SAMPLE ID

el (low/med olids:	1): LOW_ _91.	0	Contract:CH 707 SAS No.	Dā	ate Rec	ceive	OG No.: 3 ID: 38707 ed: 05/25	.06
	CAS No.		Concentration	П		М		
	7439-92-1	Lead	6.4	- -		P_		
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CLIENT SAMPLE ID

	HSO004000N1
Name: SOUTHWEST_LAB_O	
Name: SOUTHWEST_LAB_O Code: SWOK Ca	e No.: 38707 SAS No.: SDG No.: 38707
Matrix (soil/water): SOIL	Lab Sample ID: 38707.07
Level (low/med): LOW_	Date Received: 05/25/99
% Solids:89.	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	68.9			P_
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ď£	Name:	SOUTHWEST	LAB OF OK	Con	tract:CH2M-	-OKC				
Lab	Code:	SWOK	Case No.:	38707	SAS No.:		SDG	No.:	38707	_
		1 / - 1 \	COTT						. <u>-</u>	_

Matrix (soil/water): SOIL_ Level (low/med): LOW

Lab Sample ID: 38707.08 Date Received: 05/25/99

% Solids:

_87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

7439-92-1 Lead	CAS No.	Analyte	Concentration	С	Q	м
	7439-92-1	Lead	6.2	-		<u>P</u>
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ø'	areas ora	HS0005000N1
Name: SOUTHWEST_LAB_OF_OK	Contract:CH2M-OKC	
D Code: SWOK Case No.: 38	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DG No.: 38707_
Matrix (soil/water): SOIL_		ID: 38707.09
Level (low/med): LOW	Date Receiv	red: 05/25/99
% Solids: 92.7		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	C	Q	М
7439-92-1	Lead	269			P_
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CLIENT SAMPLE ID

ab Name: SOUTHWEST_	LAB_OF_OK	Contract:CH2M-OKC	HS0005002N1
ab Code: SWOK	Case No.: 3870		SDG No.: 38707_
			ID: 38707.10 -
Level (low/med):	LOW	Date Recei	ved: 05/25/99
Solids:	_89.3		,, <u>.</u>

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	M
7439-92-1	Lead	7.8			<u>P</u>
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Color Before: Color After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
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Matrix (soil/water): SOIL_ Lab Sample ID: 38707.11 Level (low/med): LOW_ Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М		_	_ (
7439-92-1	Lead	10.0			P_	J	<i>[-</i>	= D
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Commer CL]	nts: [ENT_ID:_	SGRBHSO006000N1					
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05054

CLIENT SAMPLE ID

HSO006000FD ab Name: SOUTHWEST_LAB_OF_OK_____ Contract:CH2M-OKC Jab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707 Matrix (soil/water): SOIL_ Lab Sample ID: 38707.12 Level (low/med): LOW Date Received: 05/25/99 % Solids: _87.2 Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Analyte Concentration C 7439-92-1 Lead 22.9 J FA Color Before: BROWN_ Clarity Belole: CLEAR_ Texture: MEDIUM Color After: YELLOW___ Artifacts: _____ Comments: CLIENT_ID:_SGRBHS0006000FD___

FORM I - IN

CLIENT SAMPLE ID

	•	INOUGHNIC	ANALISES DATA	111757			
Name: SOUT	HWEST_LAB_OI	F_OK	Contract:CH2	2M-OKC		HSO00600	
Lab Code: SWOK Matrix (soil/watrix (soil/watrix (soil/watrix Solids:	Cas ater): SOIL	se No.: 38	707 SAS No.	Lab S	ample	DG No.: 3 ID: 38707 ed: 05/25	.13
Co			/L or mg/kg dry	y weig	nt): M	IG/KG	
	CAS No.	Analyte	Concentration	c ç) M	-	
	7439-92-1	Lead	8.3		P_	-	
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		***************************************				_	
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR_		exture: rtifacts:	MEDIUM
Comments: CLIENT_ID:_	SGRBHS00060	02N1					

FORM I - IN

CLIENT SAMPLE ID

ab Name: SOUT ab Code: SWOK atrix (soil/wa evel (low/med Solids:	HWEST_LAB_O Ca ater): SOIL): LOW_ _86.	F_OK_ se No.: 38	Contract:CH	2M-OKC : Lab Sampl	HS0006002FD SDG No.: 38707_ Le ID: 38707.14 eived: 05/25/99
Co	ncentration	Units (ug	/L or mg/kg dry	y weight):	: MG/KG
	CAS No.	Analyte	Concentration	c Q	М
	7439-92-1	Lead	7.2		P_
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Color Before:		Clari Clari	ty Before: <u>CLE</u>	AR	Texture: MEDIUM Artifacts:
Comments: CLIENT_ID:_	SGRBHS00060	02FD			

FORM I - IN

HL 4/13

CLIENT SAMPLE ID

Name: SOUTHWEST	LAB OF OK	Contract:CH2		SO007000N1
ab Code: SWOK Matrix (soil/water):	Case No.: 3870	SAS No.:	SDG	No.: 38707_
			Lab Sample ID	
Level (low/med): % Solids:	LOW87.2	1	Date Received	: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	С	Q	М
7439-92-1	Lead	10.9	_		P_
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	Before: After:	BROWN		Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Commer CL		SGRBHS0007000N1					***************************************
			FOR	M I - IN			

CLIENT SAMPLE ID

ab Name: SOUTI Lab Code: SWOK Matrix (soil/wa Level (low/med & Solids:	HWEST_LAB_O Ca ater): SOIL): LOW _92.		Contract:CH2 707 SAS No.:	2M- : La Da	OKC ab Sampl ate Rece	SD e I	HSO00700 G No.: 3 D: 38707 d: 05/25	38707_ 7.16	Ĵ
Cor	ncentration	Units (ug	/L or mg/kg dry	7 W	weight):	MG	/KG		
	CAS No.	Analyte	Concentration	С	Q	M			
	7439-92-1	Lead	6.2	- -	***************************************	P_			
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR			xture: tifacts:	MEDIUM	
Comments: CLIENT_ID:_	_SGRBHSO0070	02N1							

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CLIENT SAMPLE ID

		INORGANIC .	ANALYSES DATA S	SHEET	
Name: SOUTH Lab Code: SWOK Matrix (soil/wi Level (low/med % Solids:	$\frac{\overline{C}a}{ater}$: SOIL	se No.: 38 -	Contract:CH2 707 SAS No.:	: Lab Sam	HS0008000N1 SDG No.: 38707 ple ID: 38707.17 ceived: 05/25/99
Con	ncentration	Units (ug	/L or mg/kg dry	y weight): MG/KG
	1	T		T T	
	CAS No.	Analyte	Concentration	C Q	M
	7439-92-1	Lead	9.4	_	P
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE	AR_	Texture: MEDIUM Artifacts:
Comments:					
	SGRBHS00080	00N1			**************************************

FORM I - IN

JU 1/3 05069

						HSOUURC	JU2N1
зb	Name:	SOUTHWEST	LAB OF OK	Contract:(CH2M-OKC		
	Code:		Case No ·	38707 SAS No	o.: — Ś	SDG No.:	38707

Lab Code: SWOK___ Case
Matrix (soil/water): SOIL_
Level (low/med): LOW__

Solids: __95.1

Lab Sample ID: 38707.18 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No. A		Concentration4.3		Q	M P
7439-92-1 Le	ead				
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Color Be	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIU
Comments CLIEN	SGRBHSO008002N1_					
		FORI	M I - IN			

CLIENT SAMPLE ID

Name: SOUT Lab Code: SWOK Matrix (soil/w Level (low/med % Solids:	$\underline{\underline{}}$ Ca ater): SOIL	se No.: 38	Contract:CH2 707 SAS No.:	: Lab Sample	HS0009000N1 SDG No.: 38707 ID: 38707.19 Lved: 05/25/99
Со	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG
	CAS No.	Analyte	Concentration	C Q M	1
	7439-92-1	Lead	38.1		-
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	***************************************	-			
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					_
Color Before: Color After:	BROWN	Clari Clari	ty Before: <u>CLE</u>	AR_	Texture: MEDIUM Artifacts:
Comments: CLIENT_ID:_	SGRBHS00090	00N1			

FORM I - IN

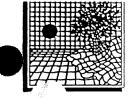
3062

CLIENT SAMPLE ID

ab Name: SOUTHWEST_LAB_ Lab Code: SWOK C Matrix (soil/water): SOI Level (low/med): LOW % Solids:87 Concentration	ase No.: 38 L_ 	Contract:CH2 707 SAS No.: /L or mg/kg dry	La Da	ab Sampl ate Rece	eive	HS00010000N	
CAS No.	Analyte	Concentration	С	Q	М		
7439-92-1	Lead	3.8	_		<u>P_</u>		
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	-		-				

Color Before: BROWN Clarity Before: Texture: MEDIUM Color After: YELLOW Clarity After: CLEAR Artifacts: CLIENT_ID: SGRBHS00010000N FORM I - IN

14/13



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill

REPORT : 38707.05

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

SAMPLED : 05/21/99

SAMPLE #: SGRBHS0003000N1

LAB# : 38707.05

SUBMITTED: 05/25/99

LOCATION:

MATRIX : Soil

%MOISTURE: 8.8

MISCELLANEOUS

DATE DATE REFERENCE

PARAMETER

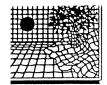
RESULTS**

UNITS PREPARED ANALYZED METHOD

PH*

8.6

06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38707.10

SAMPLE #: SGRBHS0005002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

%MOISTURE: 10.7

MISCELLANEOUS

DATE

DATE

REFERENCE

PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

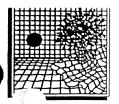
PH*

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06/05/99 SM 4500H/EPA 150.1

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

_MHill

REPORT : 38707.17

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

SAMPLED : 05/21/99 `

SAMPLE #: SGRBHS0008000N1

LAB# : 38707.17

SUBMITTED: 05/25/99

DATE

LOCATION:

MATRIX : Soil

%MOISTURE: 7.8

MISCELLANEOUS

DATE

REFERENCE

PARAMETER

RESULTS**

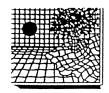
UNITS PREPARED ANALYZED METHOD

PH*

7.8

su

______ 06/05/99 SM 4500H/EPA 150.1



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.03

SAMPLE #: SGRBHS0010002N1

LOCATION:

MATRIX : Soil

SAMPLED : 05/21/99

SUBMITTED: 05/25/99

%MOISTURE: 8.0

MISCELLANEOUS

DATE DATE REFERENCE

PARAMETER

RESULTS** UNITS PREPARED ANALYZED METHOD

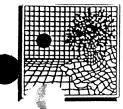
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7.9

su

06/05/99 SM 4500H/EPA 150.1

COMPOUND* = RESULTS REPORTED AS RECEIVED



1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

.ZMHill

REPORT : 38708.07

Suite 300

Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX

LAB# : 38708.07

SAMPLED : 05/21/99 SUBMITTED: 05/25/99

SAMPLE #: SGRBHS0012000N1

LOCATION:

MATRIX : Soil

%MOISTURE: 6.0

MISCELLANEOUS

DATE

DATE REFERENCE

PARAMETER

RESULTS**

UNITS PREPARED ANALYZED METHOD

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06/05/99 SM 4500H/EPA 150.1

Data Review and Validation	on for:	Metals and	/or	Cyan	nie	le /	est only	-	
Project Name & Task:	L	AREDO AFB				ΙV	VTP	-	
Project # & Case/SDG:	1	47436.DV.ZZ				387	708A	-	
<u> </u>	W-846 (6010B,7000 Series)		7200				- ¬	
	IFESC	Other:	<u> </u>	1200) se		300 series		M 3000 series
	7/7		_				imber of Samples		7 total
Field QC Samples:	13	-FB49, 2-m5/1	46	1	_5	741	13-EB		
Reviewed by & Date:	A	elle		4	<u></u>	13	17000	_	
Matrix: ☐ Water ☐ Sc	il 🗌	Other							
	132								
Quality Control	Form	Requirements		arn.	• .		ieck		lags Applied
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	╁,	TOK.	T	No*	d, see comments) Not provided	1-9	see comments)
		All samples on COC reported		OK	十	No*	Not provided	┼┾	Flags Applied Flags Applied
Holding Times (HT)		Cyanide 14 day HT met	忙	ОК	T	No*	LANIA	┼┾	Flags Applied
	14,	Mercury 28 day HT met	T	ОК	T	No*	4N/A	厅	Flags Applied
	COC	Other metals 160 day HT met		OK	Ī	No*	□ N/A	恄	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	TL	ОК	I	No*	Not provided		Flags Applied
	raw	Linearity method criteria	T	ОК		No*	2 Not provided	T	2 **** 3 * V # P *** C **
	2	ICV criteria	6	JOK.		No*			
Continuing Calibration (CC)	14	CCV frequency		JOK_	·	No*		T	Flags Applied
	2	CCV critieria	4	JOK_		No*			
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	L	-OK	L	No*	see blnk wksht		Flags Applied
ICB and CCB	3	ICB, CCB	止	OK	<u>-</u>	No*	see blnk wksht		
Prep Blank Frequency (PB)	3	1 PB per batch		бк	L	No*	400	<u> </u>	
ICP Interference Check (ICS)	4	Method criteria met	-	OK.	L	No*	•		Flags Applied
MS/MSD or MS/LD	5	MS/MSD MS/LD None*		OK.	Ļ	No*		L	Flags Applied
4	5	Recovery Limits: Lab 4 Meth Precision criteria		OK_	누	No*			
Post Spike Samp. Recov.	5	Criteria met	₩	lok	╄	No*		-	1
Duplicate Samples (LD)	6	Criteria met	+-	OK OK	누	No*	N/A	뉴	Flags Applied
LCS (BS)	7	Frequency	_	OK	┝	No*	□ N/A	⊬	Flags Applied
LCS only LCS/LCSD	1	Acceptance criteria met	-	Jeк	H	No*	L N/A	 -	Flags Applied
Standard Addition	8	Criteria met	屵	OK	늗		PN/A	┢	Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	╁┾╴	ОК	1	10*	□ N/A	╁	Flags Applied Flags Applied
Internal Standard (IS)		Internal Standards used	厅	ОК	Ħ	No*		┝	J riags Applied
Sample Evaluations (SAM)	1	All hits within cal. Range	1	OK	П	No*	AIIND	\top	Flags Applied
	1	Total > Dissolved		ОК	ī		I NIA	厅	Flags Applied
Field Duplicates (FD)		Precision of native vs Field Dup	1	OK		No*	□ N/A		Flags Applied
This sheet is applicable to multiple me	thods. Al	l requirement items may not apply to every	ana	lytical	me	thod.			
Case Narrative Comments:									
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		WITH DILLETTO	<u>U</u>			Mag	rged "E"	By	y hab.
OC Item		Comm	ents	3		***************************************			
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5b 16		12.6 70D - D	(de)			est	le sults		"J"
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	•	INORGANIC.	ANALYSES DATA	SHEET		,	
Name: SOUTH Code: SWOK Matrix (soil/wi Level (low/med) & Solids:	Cas ater): SOIL	se No.: 38	Contract:CH 708 SAS No.	: Lab	Sample	HSO009 SDG No.: = ID: 387 ived: 05/	38708A 08.01
Co	ncentration	Units (ug	/L or mg/kg dry	y wei	ght):	MG/KG	
	CAS No.	Analyte	Concentration			M	
	7439-92-1	Lead	13.4		E	<u> </u>	5D
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Color Before: Color After:	BROWN	Clari Clari	ty Before: $\overline{\text{CLE}}$	AR_		Texture: Artifact	MEDIUM
Comments: CLIENT_ID:_	_SGRBHS0009	002N1					

FORM I - IN

All 4/13/2000

wab Name: SOUTH ab Code: SWOK_ (atrix (soil/wa) wevel (low/med) Solids:	ter): SOIL : LOW92.:	- 3	Contract:CH2 708 SAS No.:	Lā Dā	ab Sampl ate Rece	e l ive	D: 387 ed: 05/	38708A 08.02
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	CAS No.	Analyte	Concentration	С	Q	M		
	7439-92-1	Lead	3.8	_ _	<u>==</u>	P_	J	5D
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Color Before: Color After:	BROWNYELLOW	Clarity Clarity		CLEAR_	Texture: Artifacts:	MEDIUM
CLIENT_ID:_	_SGRBHSO010000F	D				
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Bly 13

J Name: SOUT Code: SWOK Matrix (soil/w Level (low/med % Solids:	ater): Soll	<u>-</u>	Contract:CH	Lab Sampl	HS001000 SDG No.: 3 e ID: 38708 ived: 05/29	38708A 3.03
Со	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	3.4	_ <u></u>	P_ J 3	0
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Color Before: Color After:	BROWN	Clari Clari	ty Before: CLE		Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:_	_SGRBHSO010	002FD		***************************************		MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACONO MACON

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All 4/13 05073

CLIENT SAMPLE ID

INORGANIC ANALYSES DATA SHEET HS0011000N1 ab Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-OKC_ 1b Code: SWOK___ Case No.: 38708 SAS No.: _____ SDG No.: 38708A Lab Sample ID: 38708.04 atrix (soil/water): SOIL_ evel (low/med): LOW Date Received: 05/25/99 _87.3 Solids: Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Concentration C Analyte 5D \overline{P} I 7439-92-1 Lead 5.0 Color Before: BROWN______
Color After: YELLOW____ Clarity Before: CLEAR_ Texture: MEDIUM Artifacts: Comments:

FORM I - IN

CLIENT ID: SGRBHS0011000N1

CLIENT SAMPLE ID

		INORGANIC	ANALYSES DATA	SHEET	1	
Name: SOUT	HWEST_LAB_O	F_OK	Contract:CH	2M-OKC		11002N1
Level (low/med % Solids:	ater): SOIL	se No.: 38 _	708 SAS No.	: Lab Sam	SDG No aple ID: 38 eceived: 09	.: 38708A 8708.05 5/25/99
Co	oncentration	Units (ug	/L or mg/kg dr	y weight	:): MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7439-92-1	Lead	5.2		- P J	50
•						
Color Before: Color After:		Clari Clari	ty Before: CLE	AR	Texture Artifac	
Comments: CLIENT_ID:_	SGRBHS0011	002N1		_		
All control to the second of t		F(ORM I - IN			

05073

ab Name: SOUTH ab Code: SWOK_ atrix (soil/wa evel (low/med) Solids: Con	ter): SOIL_ : LOW _94.0	- Ī		Lа Da	b Sample te Recei	SD SD Ve	G No.: D: 387 d: 05/	38708A 708.07 /25/99
	CAS No.	Analyte	Concentration	С	Q 1	1		
	7439-92-1	Lead	9.2		I	5_	J	5D
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	Before: After:	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Commer CL1		_SGRBHSO012000NI	L				
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AL/13

CLIENT SAMPLE ID

Sever (10w/med & Solids:	_87.	9	Contract:CH2708 SAS No.:	Date Rec	ole ID: 3870 ceived: 05/	08.08 25/99
	CAS No.	Analyte	Concentration	C Q	м	
	7439-92-1	Lead	6.1		P J	50
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Color Before: Color After:		Clari Clari	ty Before: CLE	AR_	Texture: Artifacts	
Comments:						

CLIENT SAMPLE ID

.atrix (soil/water): SOIL_ Level (low/med): LOW_

% Solids:

LOW___88.2

Lab Sample ID: 38708.09 Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М		
7439-92-1	Lead	36200	_	<u>-</u> E_	P_	J	5D
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Color Be Color Af	BROWN	Clarity Clarity	Before: After:	CLEAR_	Texture: Artifacts:	MEDIUM
Comments CLIEN	_SGRBHSO013000NI	L		-		
		FORI	4 I - IN			

Al 4/13

CLIENT SAMPLE ID

lab Name: SOUT Code: SWOK Lacix (soil/w Level (low/med Solids:): LOW_ _83.	8	Contract:CH 708 SAS No.	Date Red	HS0013002N3 SDG No.: 3870 ple ID: 38708.10 ceived: 05/25/99	 A80 0
	CAS No.	Analyte	Concentration	C Q	M	
	7439-92-1	Lead	8.8		PJ 5D	
Color Before: Color After:	BROWN	Clari Clari	ty Before: <u>CLE</u>	AR_	Texture: ME	DIU
Comments: CLIENT_ID:	_SGRBHSO013	002N1				

FORM I - IN

413 05079

						H	SO014	002N1
ab	Name:	SOUTHWEST	LAB OF OK	Co	ntract:CH2M-O	KC		
ab	Code:	SWOK	Case No.:	38708	SAS No.:	SDG	No.:	38708A
·~+ •	riar 100	oil/wator).	COTT.		T.ah	Cample II	1. 3870	12 12

fatrix (soil/water): SOIL_
Level (low/med): LOW___ _81.5 | Solids:

Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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CAS No.	Analyte	Concentration	C	Q	М		
7439-92-1	Lead	6.4		E-	P_	J	5D
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Color Before Color After:	: BROWN	Clarity Before: Clarity After:	CLEAR_	Texture: Artifacts:	MEDIUN
Comments: CLIENT_ID	:SGRBHSO01400	2N1			
		FORM I - IN			

CLIENT SAMPLE ID

matrix (soil/waterix (soil/wat	ater): SOIL : LOW84.	se No.: 38 - 6	Contract:CH2 708 SAS No.: /L or mg/kg dry	La Da	b Sampl te Rece	SI SE Le I	HSO01500 OG No.: 3 ID: 38708 ed: 05/25	8708A .14
COI		Units (ug	/L Of mg/kg dry	/ W	ergne):	: M.G	3/ <i>K</i> G	
	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	9.9		_ E	P_	J.	5D
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Color Before: Color After:	BROWNYELLOW	Clari Clari	ty Before: CLE	AR			xture: tifacts:	MEDIUM
Comments: CLIENT_ID:_	_SGRBHSO015	000N1						

FORM I - IN

41/3 05081

ab Name: SOUTH ab Code: SWOK_ atrix (soil/wa evel (low/med) Solids:	ater): SOIL		Contract:CHI 708 SAS No.	Lab Sample	HSO01500 SDG No.: 3 e ID: 38708 ived: 05/25	8708A
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight):	MG/KG	
	CAS No.	Analyte	Concentration	C Q I	M	
	7439-92-1	Lead	15.4	- E-	P_ J 5	D

					- ,	
Color Before: Color After:	BROWN YELLOW	Clari Clari	ty Before: CLE	AR_	 Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:	_SGRBHS0015	002N1				

FORM I - IN

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CLIENT SAMPLE ID

Name: SOUT Code: SWOK Lix (soil/w Level (low/med Solids:	ater): WATE	K	Contract:CH 708 SAS No.	Lab S	ample	SGRBHWQ01200 DG No.: 38708B ID: 38708.06 red: 05/25/99
Со	ncentration	Units (ug	/L or mg/kg dry	y weig	ht): U	G/L_
	CAS No.	Analyte	Concentration	C Q	M	1 FB
	7439-92-1	Lead	2.1	፱ 🚃	$ _{\overline{P}_{-}}$	
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Color Before: Color After:	COLORLESS COLORLESS	Clarit Clarit	y Before: CLEA Cy After: CLEA	AR_ AR		xture:
Comments: CLEIENTS_ID	=_SGRBHWQ012					4
		FC	DRM I - IN			,

05083 4/13

SGRBHW001500	
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Matrix (soil/water): WATER Lab Sample	SGRBHWQ01500 SDG No.: 38708B ID: 38708.13 ved: 05/25/99
Concentration Units (ug/L or mg/kg dry weight):	UG/L_

			T			
CAS No.	Analyte	Concentration	C	Q	М	I t
7439-92-1	Lead	2.2	ਹ		<u>P_</u>	$\left(-\right) $
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Color Before: Color After:	COLORLESS COLORLESS	Clarity Clarity	Before: After:	CLEAR_ CLEAR_	Texture: Artifacts:	
Comments: CLEIENTS_ID	=_SGRBHWQ0150	00EB				
		FORM	II - IN			

YOTAL & SPLP

Data Review and Validatio	n for:	Metals and	4	OF-	Cyan	ide	2	4	MONY		
Project Name & Task:	L.	AREDO AFB					ΙW	/T	P	-	
Project # & Case/SDG:	14	17436.DV.ZZ					39	08	6		
Methods: ILM04.0	W-846 (5010B,7000 Series)	- А	Г	200	seri	·		300 series] SM	1 3000 series
	IFESC	Other:							ber of Samples:		
Field QC Samples:									·		
Reviewed by & Date:	La	/, -			4/	//	2	7,	1000		
Matrix: ☐ Water ☐ So		Other	-				2/		vag)		
Matrix.	··	Calc									
Quality Control	Form	Requirements	T				Ch	ec	k	F	lags Applied
-	#		۱		(If No*	che			ee comments)		see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	I		бĸ	_	No*	Ė	Not provided	Ľ	Flags Applied
		All samples on COC reported	I	·	ÓК		No*				Flags Applied
Holding Times (HT)		Cyanide 14 day HT met			OK		No*		HV/A	T	Flags Applied
	14,	Mercury 28 day HT met	\perp		OK		No*	Ŀ	HV/A		Flags Applied
	COC	Other metals 160 day HT met	\perp	٤	OK		No*	L	N/A		Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	1	닏	ОК	_			Not provided		Flags Applied
		Linearity method criteria	1	\sqsubseteq	OK	_	No*		Not provided		
	2	ICV criteria	+	-	OK		No*				4
Continuing Calibration (CC)	14	CCV frequency	\perp		-OK	_	No*			L	Flags Applied
Blanks (PB,EB,FB/AB)	3	CCV critieria	+	-	OR	_	No*	_	1		T
ICB and CCB	3	Detects (>RL/CRDL)	+		OK	-	No*	닏	see blnk wksht	L	Flags Applied
Prep Blank Frequency (PB)	3	ICB, CCB 1 PB per batch	+		OK		No*	L	see blnk wksht		
ICP Interference Check (ICS)	1 4	Method criteria met	+	_	OK		No*				I = 1
MS/MSD or MS/LD	1 5	4 MS/MSD MS/LD MS/LD Mone*	+		о к [No* No*			╄	Flags Applied
NISTRIBE OF MISTRE	5	Recovery Limits: Lab Meth	+		OK I		No*			L	Flags Applied
	6	Precision criteria	+		OK	_	No*				
Post Spike Samp. Recov.	5	Criteria met	+	Ħ	OK .	_	No*	Т.	N/A	Т	Flags Applied
Duplicate Samples (LD)	6	Criteria met	+	A	ok		No*	片	N/A	╁	Flags Applied
LCS (BS)		Frequency	T	_	σκ_	_	No*	t	N/A	十	Flags Applied
LCS only LCS/LCSD		Acceptance criteria met	T		OK	_	No*	-	IIVA		, rago replico
Standard Addition	8	Criteria met	T	$\overline{\sqcap}$	ок [_	No*	T-	N/A	Т	Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	Т	V	OR	_	No*	广	N/A		Flags Applied
Internal Standard (IS)		Internal Standards used			ок	_	No*	┝	N/A		
Sample Evaluations (SAM)	1	All hits within cal. Range	П	Q	OK [No*		All ND	T	Flags Applied
	1	Total > Dissolved			ок [No*	Ŀ	N/A		Flags Applied
Field Duplicates (FD)		Precision of native vs Field Dup	\perp		OK [1	N/A		Flags Applied
This sheet is applicable to multiple me	thods. Al	requirement items may not apply to ever	y a	ınai	ytical r	neth	od.				
Case Narrative Comments:		_									
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U.S. EPA - CLP

CLIENT SAMPLE --

4			INORGANIC	ANALYSES DATA	SHEET	CHIENI SAMPLE ID
ab Nab C	ame: SOU.	THWEST_LAB_C	F_OK_ use No.: 39	Contract:CH	2M-OKC	SGRBHS000200
evel.	x (soil/v (low/med ids:	vareti: SOII	·		Lab Sam	SDG No.: 39086_ple ID: 39086.01 ceived: 06/21/99
	Co	oncentration	Units (ug	/L or mg/kg dry	y weight): MG/KG
		CAS No.	Analyte	Concentration	C Q	М
		7439-92-1	Lead	54.8		_ P_
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	Before: After:	BROWN_COLORLESS	Clari Clari	ty Before:		Texture: MEDIUM Artifacts:
CL1		SGRBHS000200	00N1			
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FORM I - IN

My/3/200

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CLIENT SAMPLE

ab Name: SOUTHWEST_LAB_OF_OK	
Concentration Units (ug/L or mg/kg dry weight): MG/KG	
CAS No. Analyte Concentration C Q M 7439-92-1 Lead	
Color Before: BROWN Clarity Before: Texture: MEDIUM Color After: COLORLESS Clarity After: Artifacts:	
<pre>CLIENT_ID:=SGRBHS0004000N1</pre>	
FORM I - IN	
FORM I - IN	

CLIENT SAMPLE ID

ab Name: SOUT	THWEST_LAB_O	F_OK	Contract:CH	2M-	окс	SGRBHS	3000500
<pre>fatrix (soil/v .evel (low/med); Solids:</pre>	vater): SOIL i): LOW _92.		Contract:CH 086 SAS No.	: La Da	b Samp te Rec	SDG No.: le ID: 39(eived: 06/) 86 D3 =
Co	oncentration	Units (ug	/L or mg/kg dr	y w	eight)	: MG/KG	
	CAS No.	Analyte	Concentration	С	Q	М	
	7439-92-1	Lead	134	- : - :		P_	
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Color Before: Color After:	BROWN COLORLESS	Clarit Clarit	ty Before:			Texture:	
Comments: CLIENT_ID:=	SGRBHS000500	00N1					
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		F	ORM I - IN				

CLIENT SAMPLE ID

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so	FRBHS	000600
SDG	No.:	39086

							SGRBHS	00600
ď£	Name:	SOUTHWEST_	_LAB_OF_OK	C	ontract:CH2M-(OKC		
		SWOK	Case No.:	39086	SAS No.:	SI	DG No.:	39086
1t	rix (so	oil/water):	SOIL_		Lal	o Sample :	ID: 3908	36.04
3V6	el (lov	v/med):	LOW		Dat	te Receive	ed: 06/2	21/99

_90.0 Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

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	CAS No.	Analyte	Concentration	С	Q	М		
	7439-92-1	Lead	14.4	₽		P_	T	IB
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	Before: After:	BROWN COLORLESS	Clarity Clarity	Before: After:	 Texture: Artifacts:	MEDIUM
CL	nts: IENT_ID:=	SGRBHS0006000FD				
			FORI	M I - IN		

U.S. EPA - CLP CLIENT SAMPLE ID INORGANIC ANALYSES DATA SHEET SGRBHS000100 Lab Name: SOUTHWEST_LAB_OF_OK___ Lab Code: SWOK___ Case No. Contract:CH2M-OKC Case No.: 39086 SAS No.: SDG No.: 39086_ fatrix (soil/water): SOIL_ Lab Sample ID: 39086.05 _evel (low/med): LOW Date Received: 06/21/99 Solids: _89.4 Concentration Units (ug/L or mg/kg dry weight): MG/KG CAS No. Analyte Concentration C Q М 7439-92-1 Lead <u>P_</u> IB J 21.4 B Color Before: BROWN Clarity Before: ____ Texture: MEDIUM Color After: COLORLESS

	111.001.	COLORGEDS	Clarity	Arter:	 Artifacts:
Comme:		SGRBHS0001000N1			
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FORM I - IN

05091 4/13

CLIENT SAMPLE ID

ix (soil/wall (low/med) lids:	ater): WATE): LOW0.0	R 0	Contract:CH: 086 SAS No. /L or mg/kg dr	Lab Sample Date Recei	002000N1 SDG No.: 390 ID: 39086.0 ved: 06/21/9	1
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	CAS No.	Analyte	Concentration			_
	7439-92-1	Lead	30.7	P	[] J .	IB
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or Before: or After:	COLORLESS COLORLESS		ty Before: CLE ty After: CLE		Texture: _ Artifacts: _	
ments: CLIENT_ID=S	SGRBHSO00200	00N1				*****
		I	FORM I - IN			<u>.</u> .//n

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CLIENT	' SAI	MP	LE	II
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Name: SOUTH Code: SWOK_ rix (soil/wat rel (low/med) Solids:	WEST_LAB_OF Cas Ler): WATER : LOW0.0		Contract:CH: 086 SAS No.	2M : La Da	-OKC ab Sampl ate Rece	Si Le	004000N DG No.: : ID: 3908 ed: 06/2	39086_ 6.02 1/99
Cond	centration	Units (ug,	/L or mg/kg dry	у	weight)	: U	G/L_	
	CAS No.	Analyte	Concentration	С	Q	М	***	
7	7439-92-1	Lead	73.5	₽		P_	J	工B
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omments: CLIENT_ID=SG	RBHS0004000	N1						

FORM I - IN

15093 HR/13

CLIENT SAMPLE ID

]	INORGANIC	ANALYSES DATA S	SHEET	
Name: SOUTH Code: SWOK_ rix (soil/wa el (low/med)	Cas (ter): WATER	se No.: 39	Contract:CH2 086 SAS No.:	: Lab Samp:	005000N1 SDG No.: 39086_ le ID: 39086.03 eived: 06/21/99
olids:	0.0	<u> </u>		Date Rece	sived: 06/21/99
01100.					
Cor	ncentration	Units (ug	/L or mg/kg dry	y weight)	: UG/L_
	CAS No.	Analyte	Concentration	C Q	М
	7439-92-1	Lead	857		P_
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or Before:	COLORLESS	Clari	tu Pofozo CIE	λD	Touture.
or After:	COLORLESS	Clari	ty Before: CLE ty After: CLE		Texture: Artifacts:
ments: CLIENT_ID=S	GRBHS0005000)N1			

FORM I - IN

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CLIENT SAMPLE ID

· Ma		INORGANIC	ANALYSES DATA	SHI	EET	,-		
Code: SWOK	Ca ater): WATE	se No.: 39 R	Contract:CH	: Lā	-OKC ab Sampi ate Rece	le I	0060001 OG No.: D: 3908 ed: 06/2	39086_ 36.04
Co	ncentration	Units (ug	/L or mg/kg dr	у •	weight)	: UG	S/L_	
	CAS No.	Analyte	Concentration		Q	M		
	7439-92-1	Lead	4.6	₽		P_	J	IB
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or After:	COLORLESS	Clari	ty Before: CLEA ty After: CLEA	AR_ AR			cture:	•
ments: CLIENT_ID=S	GRBHS0006000			-				•
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CLIENT SAMPLE ID

		INORGANIC A	ANALYSES DATA S	SHEET	. —		
Name: SOUTH Code: SWOK_ ix (soil/wa l (low/med) lids:	IWEST_LAB_O: Ca: ater): WATE: : LOW0.0	_	Contract:CH2 086 SAS No.	2M-OKC_ : Lab Sat Date Re	mple 1	001000N3 OG No.: 3 ID: 39086 ed: 06/23	39086_ 5.05
Cor	ncentration	Units (ug	/L or mg/kg dry	y weigh	t): UG	3/L_	
	CAS No.	Analyte	Concentration	C Q	М		
	7439-92-1	Lead	47.1	B	P	I	FB

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or Before: or After:	COLORLESS COLORLESS		ty Before: CLE ty After: CLE	AR_ AR_		xture: tifacts:	30
ments: CLIENT_ID=S	GRBHSO00100	0N1					

FORM I - IN

Al/3

Data Review and Validation	ı for:	TOTAL & SPLP Metals and	or Cyar	nide lynd only						
Project Name & Task:	L	AREDO AFB		IWTP						
Project # & Case/SDG:	1-	47436.DV.ZZ		39177						
Methods: ILM04.0 PSW	/-846 (6010B,7000 Series)	200 series							
	ESC	Other:	TEST SCHOOL							
			-	Number of Samples:	6 total					
Field QC Samples:	-m	3/M5D								
Reviewed by & Date: H, Kalla 4/13/2000										
Matrix: Water Soil		Other								
Quality Control	Form	Requirements		Check	Flags Applied					
	#	1	(If No	* checked, see comments)	(see comments)					
Data Pkg Complete (DP)		All required deliverables in pkg.	Legk	☐ No* ☐ Not provided	☐ Flags Applied					
	COC	All samples on COC reported	MAKK	Z-140*	☐ Flags Applied					
Holding Times (HT)		Cyanide 14 day HT met	∐ ок	No* LAN/A	☐ Flags Applied					
	14,	Mercury 28 day HT met	ОК	No* LAN/A	☐ Flags Applied					
	COC	Other metals 160 day HT met	1 OK	□ No* □ N/A	Flags Applied					
Initial Calibration (IC)	14	Min. initial # of levels per method	Ок	No* ∠Kot provided	Flags Applied					
		Linearity method criteria	Ок	☐ No* ☐ Not provided						
		ICV criteria	LOK	□ No*						
Continuing Calibration (CC)	14	CCV frequency	2 OK	□ No*	Flags Applied					
	2 CCV critieria		LOK	No*						
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	₽ OK	No* ☐ see blnk wksht	Flags Applied					
ICB and CCB	3	ICB, CCB	4-OK	□ No* □ see blnk wksht	J-14p					
Prep Blank Frequency (PB)	3	1 PB per batch	∠ OK	□ No*						
ICP Interference Check (ICS)	4	Method criteria met	LOK	No*	Flags Applied					
MS/MSD or MS/LD	5	MS/MSD MS/LD None*	COK	No*	☐ Flags Applied					
	5	Recovery Limits: Lab Ameth	LOK	□ No*						
	6	Precision criteria	∠ eκ	No*						
Post Spike Samp. Recov.	5	Criteria met	Ок	No* ZNA	☐ Flags Applied					
Duplicate Samples (LD)	6	Criteria met	JOK	□No* □N/A	☐ Flags Applied					
LCS (BS)	7	Frequency	L OK	□ No* □ N/A	☐ Flags Applied					
DLCS only PLCS/LCSD		Acceptance criteria met	LOK	No*						
Standard Addition	8	Criteria met	Ок	□ No* □ N/A	Flags Applied					
ICP Serial Dilution (SD)	9	Criteria met	LOK	□No* □N/A	Flags Applied					
Internal Standard (IS)		Internal Standards used	ОК	□ No* □N/A						
Sample Evaluations (SAM)	1	All hits within cal. Range	LOK	□ No* □ All ND	☐ Flags Applied					
		Total > Dissolved	□ок	□No* □N/A	☐ Flags Applied					
Field Duplicates (FD)	1	Precision of native vs Field Dup	Ок	No* PN/A	☐ Flags Applied					
This sheet is applicable to multiple meth Case Narrative Comments:	ods. Al	l requirement items may not apply to every	analytical	method.						
Case Nati ative Comments:		NO ERMENTIONS	11/	OTE D	***************************************					
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CLIENT SAMPLE TO

		INORGANIC	ANALYSES DATA	SHEET		mare TE
. rix (soil, Level (low/me % Solids:	/water): SOII ed): LOW84.	4_ 6	Contract:CH 177 SAS No.	Lab Sam Date Re	0160001 SDG No.: ple ID: 3913 ceived: 06/2	39177_
C	Concentration	Units (ug	/L or mg/kg dr	y weight): MG/KG	
	CAS No.	Analyte			M	
	7439-92-1	Lead	23.3		_ P_	
-)						
۵						
Color Before: Color After:	BROWN	Clarit Clarit	y Before: CLEA	IR_	Texture: Artifacts:	MEDIUM
Comments: CLIENT_ID:	_SGRBHSO01600	0N1				***************************************
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FORM I - IN HB 4/13/2000 05093

CLIENT SAMPLE ID

Solids:	1): LOW83. oncentration	2	/L or mg/kg dry			ived: 06/26 MG/KG	/99
	CAS No.	Analyte	Concentration	С	Q	1	
	7439-92-1	Lead	22.6	<u>-</u>		-	
				<u>-</u>		_	
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olor Before: olor After:	BROWN	Clari Clari	ty Before: CLE	AR.		' Texture: Artifacts:	MEDIU

FORM I - IN

14/13

CLIENT SAMPLE ID

Solids:	_85.		/L or mg/kg dr			eived: 06	, , ,
	CAS No.	Analyte	Concentration	С	Q	м	
	7439-92-1	Lead	265	_		<u>P_</u>	
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				-			
				-			
				=			
olor Before:	BROWN	Clarit	y Before:	_		Texture:	MEDI
olor After:	YELLOW	Clarit	y After: CLEA	IR_	•	Artifact	

fl 4//3 05101

CLIENT SAMPLE ID

S0016000N1 Lab Name: SOUTHWEST_LAB_OF_OK____ Contract:CH2M-UT Case No.: 39177 SAS No.: SDG No.: 39177B Lab Code: SWOK___ Matrix (soil/water): WATER Lab Sample ID: 39177.01 Date Received: 06/26/99 Level (low/med): LOW __0.0 % Solids: Concentration Units (ug/L or mg/kg dry weight): UG/L_ CAS No. Analyte Concentration C 0 М P_ IB 7439-92-1 Lead 11.1 B

-	Before: After:	COLORLESS COLORLESS	Clarity Clarity	Before:	CLEAR_ CLEAR_	Texture: Artifacts:	
CLI	nts: ENT_ID=_	SGRBHSO016000N	1				
			FOR	M T - IN			

11/3

CLIENT SAMPLE ID

		*				1	
Name: SOUT	THWEST_LAB_O	F_OK	Contract:CH	2M-U	rr	soo	17000N1
Name: SOUT Lap Code: SWOR Matrix (soil/w Level (low/med % Solids:	C Ca water): WATE i): LOW0.		177 SAS No.	: Lab Dat	Sampl e Rece	SDG N e ID: ived:	No.: 39177B 39177.02 06/26/99
Co	oncentration	Units (ug	/L or mg/kg dr	y we	eight):	UG/L_	-
	CAS No.	Analyte	Concentration	C	Q	м	
	7439-92-1	Lead	13.5	B _		P_ J	IB
				- - -			
	***************************************					_	
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				-			
						_	
Color Before: Color After:	COLORLESS COLORLESS		ty Before: CLE ty After: CLE	AR_ AR_		Textu: Artifa	
Comments: CLIENT_ID=_	_SGRBHSO0170	00N1	74-74				
	-			<u>·</u>			
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CLIENT SAMPLE ID

		INONGMUIC ,	MIMLISES DAIA	11221	
Lab Name: SOUTI	HWEST LAB O	F OK	Contract:CH	2M-UT	S0018000N1
Lab Name: SOUTH Lab Code: SWOK Matrix (soil/wa Level (low/med) % Solids:	ater): WATE	R	177 SAS No.	Lab Samp	SDG No.: 39177B le ID: 39177.03 eived: 06/26/99
Cox	ngontration	TIM for a comme	/7 /1 1		
CO	dentiation	units (ug	/L or mg/kg dry	y weight)	: UG/L_
	CAS No.	Analyte	Concentration	C Q	M
	7439-92-1	Lead	16.0-	B =	P J IB
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Color Before:		Clari	ty Before: CLE		Texture:
Color After:	COLORLESS	Clari	ty After: CLE	AR_	Artifacts:
Comments: CLIENT_ID=_	SGRBHS00180	00N1			

FORM I - IN

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Data Review and Validatio	n Ior:	Metals and	/ 01	Cya	nic	le-	4	ens only		
Project Name & Task:	L	AREDO AFB				I/	V T.	P		
Project # & Case/SDG:	1-	47436.DV.ZZ				39	939	0		
Methods: 🔲 ILM04.0 🕡 51	N-846 (6010B,7000 Series)	ا ۵	7200	· ·			300 series	7 a.	
	FESC	Other:	ب	1200	<i>)</i> 30					<u>M 3000 series</u>
Field QC Samples:		Outer.	-			N	um	ber of Samples:		4 3 kg
7	/ 	/ //						, 		
Reviewed by & Date:	SI	e (lef		- 4	1	//3	3/	2000		
Matrix: Water Soil		Other								
Quality Control	Form	Ţ	-							
Quanty Control	#	Requirements		/F0.51	_		hec			lags Applied
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	╁)* C			ee comments)	(see comments)
(= 2)		All samples on COC reported	+	JOK TOK	上	No*	Ł	Not provided	누	Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	十	JOK	屵	No*		MYA	누	Flags Applied
	14,	Mercury 28 day HT met	╁	ok ok	十	No*	_	N/A	누	Flags Applied
,	COC	Other metals 160 day HT met	├ ,	ok dok	十	No*	-	N/A	누	Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	厅	ОК	T	No*		Not provided	十	Flags Applied Flags Applied
	raw	Linearity method criteria		ОК	Ť	No*	卞	Not provided		1 rags Applied
	2	ICV criteria	1	JOK	Ī	No*		Titoc provided		
Continuing Calibration (CC)		CCV frequency	_	ЮК	T	No*			Т	Flags Applied
	2	CCV critieria	L	Jok		No*				
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)		-юκ	L	No*		see blnk wksht	L	Flags Applied
ICB and CCB		ICB, CCB		ок_		No*		see blnk wksht		
Prep Blank Frequency (PB)	3	1 PB per batch	_	юк		No*				
ICP Interference Check (ICS) MS/MSD or MS/LD	5	Method criteria met	14	OK	Ļ	No*				Flags Applied
WIS/WISD OF WIS/LD	1 1	MS/MSD MS/LD None*	┟┝	OK	누	No*			L	Flags Applied
	! }	Recovery Limits: Lab Meth Precision criteria	┝	OK	누	No*				
Post Spike Samp. Recov.	-	Criteria met	┝	OK	╄	No*				Т
Duplicate Samples (LD)		Criteria met	+	JOK OK	╄	No*		N/A	누	Flags Applied
LCS (BS)		Frequency		OK /	┝	No*	누	N/A	누	Flags Applied
LCS only LCS/LCSD	1 }	Acceptance criteria met		OK	H	No*		N/A	_	Flags Applied
Standard Addition		Criteria met	十	ОК	누	No*	1/2	N/A	_	Flags Applied
ICP Serial Dilution (SD)		Criteria met	十	ОК	Т	No*	Ť	N/A	十	Flags Applied
Internal Standard (IS)		Internal Standards used	T	ОК		No*	一	N/A		у подотфриса
Sample Evaluations (SAM)	1	All hits within cal. Range	T	ОК		No*	T	All ND	L	Flags Applied
	1	Total > Dissolved		ОК		No*		N/A		Hags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup		ОК		No*		N/A	I	Flags Applied
	ods. All	requirement items may not apply to every	ana	lytical	mei	hod.				
Case Narrative Comments:										
		NO EVALOHENS	-	1/	10	M	-/	7		
unter sound to	- 0	de de de		_~	_	<u> </u>				
HUIT: SAUGHT + 5	-//	as on Hour								
OC Item	•	Comme	<u>ents</u>	į						
-				***************************************						
	111	2/11/2 1	_	. ,		-(
	NU	TUHGS A	4	1/	E					
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(INM	14 80	D B Windillians	-	1	رو	,	7	2/2-5 "	7	")
		* ismarusies		y / 0	-		4			/
4						······································				
DV_wksht_0300.xls		Page of								Matal8.0

Page _____ of ____

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Metal&CN

CLIENT	SAMPLE	TD
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		INORGANIC	ANALYSES DATA	SH	EET	
atrix (soil/wevel (low/med	vater): SOIL 1): LOW84.	ise No.: 39 - 5	Contract:CH 390 SAS No.	: D	ab Samp ate Rec	016000N1 SDG No.: 39390- le ID: 39390.01 eived: 07/13/99
Сс	ncentration	Units (ug	/L or mg/kg dr	У	weight)	: MG/KG
	CAS No.	Analyte	Concentration	T	1	M
	7439-92-1	Lead	17.1	B		<u>P_</u>
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lor Before: lor After:	BROWN	Clari	ty Before:		_	Texture: MEDIUM Artifacts:
mments: CLIENT_ID_=	SGRBHS001600] INO				
		Tr/	DM T TN			

FORM I - IM

184/13/1001 05107

CLIENT SAMPLE ID

		INONGANIC	ANALYSES DATA	aanc.	1	
b Name: SOUT	HWEST_LAB_O	F_OK	Contract:CH	2M-01	KC	017000N1
trix (soil/www. vel (low/med Solids:	areri: 2017	· 	390 SAS NO.	Lab	Sample	SDG No.: 39390 ID: 39390.02 ved: 07/13/99
Co	ncentration	Units (ug	/L or mg/kg dry	y we:	ight):	MG/KG
	CAS No.	Analyte	Concentration	С	Q M	
	7439-92-1	Lead	21.7	Ē-	P	J C8 2/2/2000
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lor Before: lor After:	BROWN	Clari Clari	ty Before: ty After:			exture: MEDIU
mments: CLIENT_ID_=	SGRBHSO0170	00N1				

FORM I - IN

1/13

CLI	ENT	SAMPLE	TD

		INORGANIC	ANALYSES DATA	SHEET	, -	JIDINI SAI	ARDE ID
Name: SOUT Lab Code: SWOI Matrix (soil/v Level (low/med % Solids:	Maceri: SOTT	J	Contract:CH	Lab Sa	ample	018000N: DG No.: I ID: 39390 ed: 07/1	39390_
Co	oncentration	Units (ug	/L or mg/kg dr	y weigh	nt): M	G/KG	
	CAS No.	Analyte	Concentration	c Q	М		
	7439-92-1	Lead	76.5				
				-			
	-					The second secon	
\$.							
Color Before: Color After:		Clari Clari	ty Before: ty After:			xture: tifacts:	MEDIUM
Comments: CLIENT ID =	SGRBHSO0180	00N1					
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USACE Data Comparability Report